OPERATOR'S MANUAL

FOR SERIAL NUMBERS: 1XFRG55XPD0000025 AND UP

SPIN / RELIEF
REEL MOWER GRINDER

RG5500

FRONTIER™

This book consists of three manuals:

The OPERATORS MANUAL in ENGLISH which contains all the information on operating and doing routine daily maintenance on this equipment.

The ASSEMBLY and SERVICE MANUAL which is used by the maintainence department to install the equipment and to do all maintenance except routine daily maintenance.

The Translated OPERATORS MANUAL which is the same as the English version only translated into another language.

(REV. 5/8/2013)

DEALER PREPARATION/INSTALLATION CHECK LIST

Frontier RG5500 Spin/Relief Reel Mower Grinder

THIS CHECKLIST IS TO REMAIN IN OWNER'S MANUAL

It is the responsibility of the dealer to complete the procedures listed below, then review this checklist with the customer upon the delivery or the sale of this equipment.The installation training goes over the basic operational functions of the equipment. To ensure adequate training, we require that the following items are reviewed by your John Deere Dealer. Please check off to ensure that you understand the following items before the installation training is complete:

- ☐ 1. Equipment is completely assembled
- ☐ 2. All shields are in place and in good condition.
- ☐ 3. All decals in place and readable. (See pages)
- ☐ 4. Overall condition good (i.e. paint, welds, electrical)
- ☐ 5. Verify there is sufficient electrical power to operate the machine.
- ☐ 6. Review Operators, Assembly & Service Manuals, and any additional training material if available.
- ☐ 7. Review proper positioning of reel
- ☐ 8. Explain use of reel grinder relief mechanism
- ☐ 9. Review traverse proximity switch positioning
- ☐ 10. Explain use of reel grinder alignment gage
- ☐ 11. Explain reel grinder spin speed vs. quality
- ☐ 12. Discuss reel grinder set-up chart in manual
- ☐ 13. Review General Maintenance

Dealer's Signature _____

Purchaser's Signature _____

Safety

IMPORTANT SAFETY MESSAGE FOR OWNERS/OPERATORS OF REEL GRINDERS

Safety is a primary concern in the design, manufacture, sale, and use of reel grinders. As manufacturer of reel grinders, we want to confirm to you, our customers, our concern for safety. We also want to remind you about the simple, basic, and common sense rules of safety when using a reel grinder. Failure to follow these rules can result in severe injury or death to operators or bystanders.

It is essential that everyone involved in the assembly, operation, transport, maintenance, and storage of this equipment be aware, concerned, prudent, and properly trained in safety. Always use proper shielding as specified by the manufacturer.

Our current production machines include, as standard equipment, guards or shields for the grinding wheel, safety signs and an operators manual. Never bypass or operate the machine with any of the guards or safety device removed.

Read and fully understand all the safety practices discussed on pages 4 and 5 of this manual. All safety rules must be understood and followed by anyone who works with reel grinders.

Before operating a reel grinder, an operator must read and understand all of the information in the owner's manual and in the safety signs attached to the product. A person who has not read or understood the owner's manual and safety signs is not qualified to operate the unit. Accidents occur often on machines that are used by someone who has not read the owner's manual and is not familiar with the equipment. If you do not have an owner's manual or current production safety signs, contact the manufacturer or your dealer immediately.

Reel grinders are designed for one-man operation. Never operate the grinder with anyone near, or in contact with, any part of the grinder. Be sure no one else, including bystanders, are near you when you operate this product.

Following these simple, basic safety rules, as well as others identified in the owner's manual and in product safety signs, will help minimize the possibility of accidents and increase your productivity in using this product. Be careful and make sure that everyone who operates the grinder knows and understands that this is a very powerful piece of machinery, and if used improperly, serious injury or death may result. The final responsibility for safety rests with the operator of this machine.

TO THE DEALER:

Assembly and proper installation of this product is the responsibility of the John Deere dealer. Read manual instructions and safety rules. Make sure all items on the Preparation Check List in the Operator's Manual are completed before releasing equipment to the owner.

TO THE OWNER:

Read this manual before operating your Frontier equipment. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all adjustments and operating procedures before attempting to operate the equipment. Replacement manuals can be obtained from you selling dealer.

The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Please observe all safety information in this manual and safety decals on the equipment.

For service, your authorized John Deere dealer has trained mechanics, genuine Frontier service parts, and the necessary tools and equipment to handle all of your service needs.

Use only genuine Frontier service parts.

SAFETY INSTRUCTIONS

Safety Awareness Symbols are inserted into this manual to alert you to possible ***Safety Hazards***. Whenever you see these symbols, follow their instructions.

The ***Warning Symbol*** identifies special instructions or procedures which, if not correctly followed, could result in personal injury.

The ***Caution Symbol*** identifies special instructions or procedures which, if not strictly observed, could result in damage to or destruction of equipment.

1. **KEEP GUARDS IN PLACE** and in working order.
2. **REMOVE WRENCHES AND OTHER TOOLS.**
3. **KEEP WORK AREA CLEAN.**
4. **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use Grinder in damp or wet locations. Machine is for indoor use only. Keep work area well lit.
5. **KEEP ALL VISITORS AWAY.** All visitors should be kept a safe distance from work area.
6. **MAKE WORK AREA CHILD-PROOF** with padlocks or master switches.
7. **DON'T FORCE THE GRINDER.** It will do the job better and safer if used as specified in this manual.
8. **USE THE RIGHT TOOL.** Don't force the grinder or an attachment to do a job for which it was not designed.
9. **WEAR PROPER APPAREL**. Wear no loose clothing, gloves, neckties, or jewelry which may get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
10. **ALWAYS USE SAFETY GLASSES.**
11. **SECURE YOUR WORK.** Make certain that the cutting unit is securely fastened with the clamps provided before operating.
12. **DON'T OVERREACH.** Keep proper footing and balance at all times.
13. **MAINTAIN GRINDER WITH CARE.** Follow instructions in Service Manual for lubrication and preventive maintenance.
14. **DISCONNECT POWER BEFORE SERVICING,** or when changing the grinding wheel.
15. **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure all switches are **OFF** before plugging in the grinder.
16. **USE RECOMMENDED ACCESSORIES**. Consult the manual for recommended accessories. Using improper accessories may cause risk of personal injury.
17. **CHECK DAMAGED PARTS.** A guard or other part that is damaged or will not perform its intended function should be properly repaired or replaced.
18. **KNOW YOUR EQUIPMENT.** Read this manual carefully. Learn its application and limitations as well as specific potential hazards.
19. **KEEP ALL SAFETY DECALS CLEAN AND LEGIBLE.** If safety decals become damaged or illegible for any reason, replace immediately. Refer to replacement parts illustrations in Service Manual for the proper location and part numbers of safety decals.
20. **DO NOT OPERATE THE GRINDER WHEN UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR MEDICATION.**

SAFETY INSTRUCTIONS

IMPROPER USE OF GRINDING WHEEL MAY CAUSE BREAKAGE AND SERIOUS INJURY.

Grinding is a safe operation if the few basic rules listed below are followed. These rules are based on material contained in the ANSI B7.1 Safety Code for "Use, Care and Protection of Abrasive Wheels". For your safety, we suggest you benefit from the experience of others and follow these rules.

DO

1. **DO** always **HANDLE AND STORE** wheels in a careful manner.
2. **DO VISUALLY INSPECT** all wheels before mounting for possible damage.
3. **DO CHECK MACHINE SPEED** against the established maximum safe operating speed marked on wheel.
4. **DO CHECK MOUNTING FLANGES** for equal and correct diameter.
5. **DO USE MOUNTING BLOTTERS** when supplied with wheels.
6. **DO** be sure **WORK REST** is properly adjusted.
7. **DO** always **USE A SAFETY GUARD COVERING** at least one-half of the grinding wheel.
8. **DO** allow **NEWLY MOUNTED WHEELS** to run at operating speed, with guard in place, for at least one minute before grinding.
9. **DO** always **WEAR SAFETY GLASSES** or some type of eye protection when grinding.

DON'T

1. **DON'T** use a cracked wheel or one that **HAS BEEN DROPPED** or has become damaged.
2. **DON'T FORCE** a wheel onto the machine **OR ALTER** the size of the mounting hole--if wheel won't fit the machine, get one that will.
3. **DON'T** ever **EXCEED MAXIMUM OPERATING SPEED** established for the wheel.
4. **DON'T** use mounting flanges on which the bearing surfaces **ARE NOT CLEAN, FLAT AND FREE OF BURRS.**
5. **DON'T TIGHTEN** the mounting nut **EXCESSIVELY.**
6. **DON'T** grind on the **SIDE OF THE WHEEL** (see Safety Code B7.2 for exception).
7. **DON'T** start the machine until the **WHEEL GUARD IS IN PLACE.**
8. **DON'T JAM** work into the wheel.
9. **DON'T STAND DIRECTLY IN FRONT** of a grinding wheel whenever a grinder is started.
10. **DON'T FORCE GRINDING** so that motor slows noticeably or work gets hot.

AVOID INHALATION OF DUST generated by grinding and cutting operations. Exposure to dust may cause respiratory ailments. Use approved NIOSH or MSHA respirators, safety glasses or face shields, and protective clothing. Provide adequate ventilation to eliminate dust, or to maintain dust level below the Threshold Limit Value for nuisance dust as classified by OSHA.

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This machine is intended for grinding the reel of reel type mower units ONLY. Any use other than this may cause personal injury and void the warranty.

To assure the quality and safety of your machine and to maintain the warranty, you MUST use original equipment manufactures replacement parts and have any repair work done by a qualified professional.

ALL operators of this equipment must be thoroughly trained BEFORE operating the equipment.

Do not use compressed air to clean grinding dust from the machine. This dust can cause personal injury as well as damage to the grinder. Machine is for indoor use only. Do not use a power washer to clean the machine.

Low Voltage Relay

The grinder is equipped with a high-low voltage relay which is factory preset at 100-140 VAC. If the power supply line does not deliver 100-140 VAC power under load, the relay will open and trip out the starter. If this occurs, your power supply line is incorrect and must be correct before proceeding further with the grinder.

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DAILY MAINTENANCE BY THE OPERATOR

On a daily basis, clean the machine by wiping it off.
On a daily basis, remove all grinding grit from the grinding shaft, traverse shafts, and tooling bar area.
On a daily basis, inspect the machine for loose fasteners or components.
Contact your company's Maintenance Department if damaged or defective parts are found.

DO NOT USE COMPRESSED AIR TO CLEAN GRINDING DUST FROM GRINDER.

SAFETY INSTRUCTIONS

PLEASE TAKE SPECIAL NOTE OF THE FOLLOWING WARNING DECALS LOCATED ON THE GRINDER.

GRINDING WHEEL RPM

⚠ CAUTION **⚠ ATENCIÓN**

To Avoid Injury:
-Do not exceed grinding wheel maximum operating speed of 3600 revolutions per minute.

Para evitar lesiones:
-No exceda la velocidad de funcionamiento máxima, de 3600 revoluciones por minuto, de la rueda rectificadora.

GENERAL INFORMATION

⚠ CAUTION

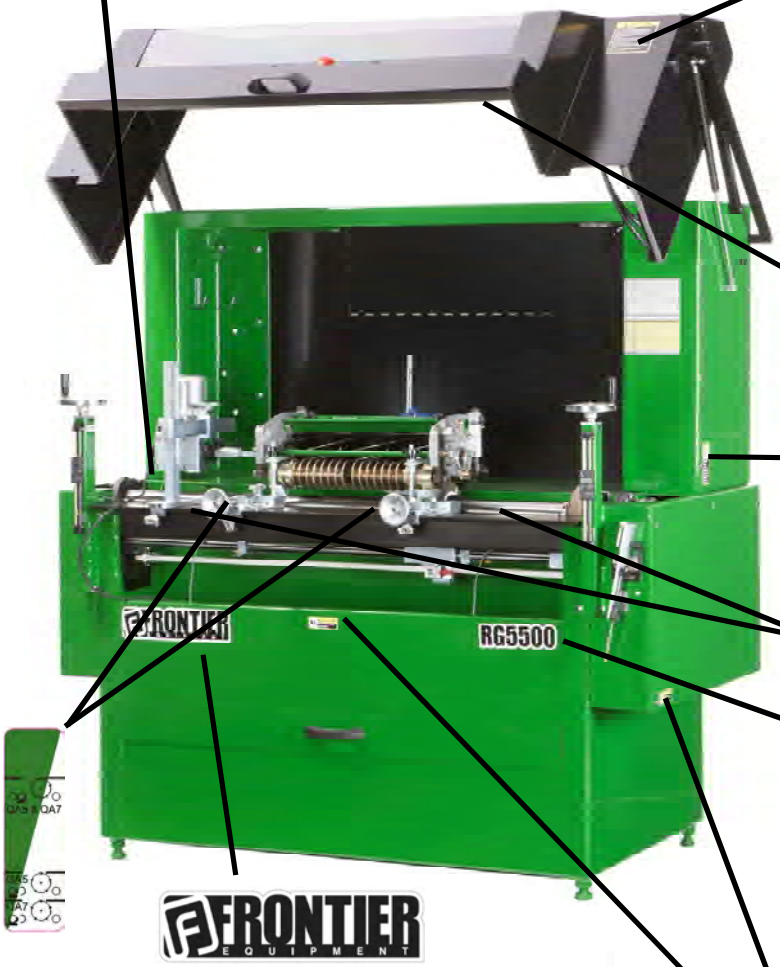
To Avoid Injury:
-Read Operator's Manual before operating, servicing, or repairing equipment. Follow all safety rules and instructions. (Manuals are available from your selling dealer.)
-Keep bystanders away from equipment during operation. Keep all shields in place and in good condition.
-Wear all of the appropriate safety equipment specified in the Operator's Manual while operating this machine.
-Always make sure machine is off and all machine movement has stopped before leaving machine.
-Never allow children or untrained persons to operate equipment.

⚠ ATENCIÓN

Para evitar lesiones:
-Lea el manual del operador antes de la puesta en funcionamiento, del mantenimiento o de la reparación del equipo. Siga todas las reglas e instrucciones de seguridad. (Los manuales se encuentran disponibles a través de su distribuidor).
-Mantenga al personal ajeno alejado del equipo durante el funcionamiento. Mantenga todos los protectores en su lugar y en buenas condiciones.
-Durante el funcionamiento de esta máquina, utilice todos los equipos de seguridad correspondientes especificados en el manual del operador.
-Asegúrese siempre de que la máquina se encuentre apagada y haya dejado de moverse antes de abandonarla.
-Nunca permita que un niño o una persona sin capacitación pongan la máquina en funcionamiento.

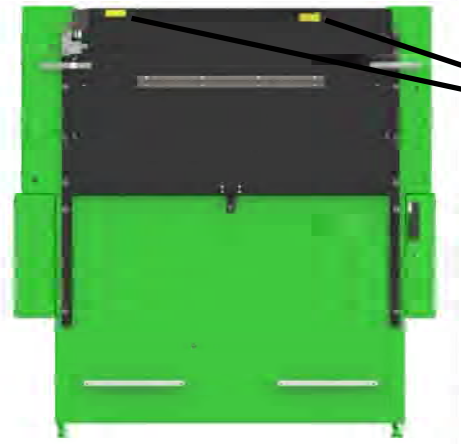
ELECTRICITY

⚠ CAUTION
To Avoid Injury:
-Make sure all electrical power to this machine has been disconnected before removing any electrical panels or covers for maintenance.
⚠ ATENCIÓN
Para evitar lesiones:
-Asegúrese de que se haya desconectado por completo el suministro eléctrico de esta máquina antes de retirar los paneles eléctricos o las cubiertas para el mantenimiento.



RG5500

SHARP OBJECTS



FRONTIER EQUIPMENT

Label Sheet
(English and Spanish)
Part Number 5NT155301
(English and French)
Part Number 5NT155302

GETTING TO KNOW YOUR GRINDER

SPECIFICATIONS

Traversing Switches	Solid state, non-contacting proximity switches.
Overall Width	71" [181 cm]
Overall Height	69" [175 cm] with door closed, 87" [221 cm] with door open
Overall Depth	42" [107 cm]without workstation, 79" [201 cm] with optional workstation
Weight	1450 lbs. [658 kg] 1650 lbs shipping weight [748 kg]
Base Construction	Precision heavy duty reinforced welded steel base
Carriage Rails	Precision Ground, Hardened Steel - 1.000 Dia. [25.4 mm]
Grind Head Motor	1HP AC Motor, 3450 RPM
Spin Motor	.20 HP Fan Cooled Variable Speed DC Motor
Sound Level	More than 75 Dba, Less than 95 Dba
Auto Traverse	Belt driven with easy to engage clamp system
Control System	*Safety grind motor and spin drive door interrupt switches *Reversible Spin drive for variable speed Spin or variable torque relief functions *Variable speed traverse control.
Options:	*Manual Winch and Boom Kit, Electric Winch and Boom Kit or Lift Platform.

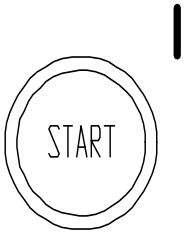
GETTING TO KNOW YOUR GRINDER (Continued)

CONTROL PANEL COMPONENT IDENTIFICATION

Review the following control panel component descriptions before proceeding with the instructions

SYSTEM START PUSHBUTTON

The green pushbutton is the system start switch. Pushing it will engage the magnetic starter and power the control panel. The magnetic starter will not engage unless the emergency stop pushbutton is pulled out and the grinding motor switch and spin motor switch are turned off.



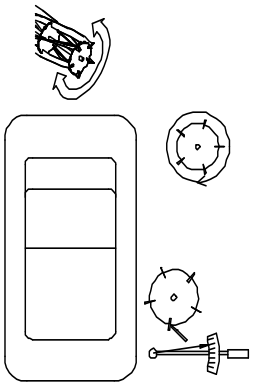
GRIND SELECTOR SWITCH

Variable speed spin

Switch must be up to perform spin grinding operations.

Variable Torque Relief

Switch must be down to perform relief grinding operations.

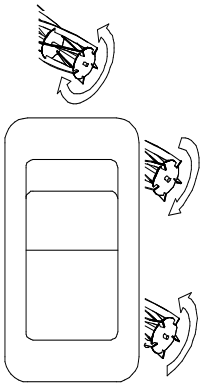


SPIN DRIVE ROTATION SWITCH

Forward / Off / Reverse

This switch reverses the direction of the spin drive motor.

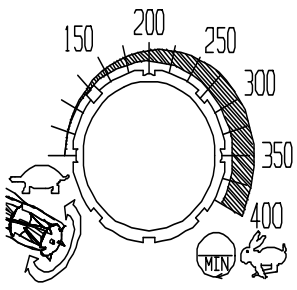
IMPORTANT: Because the spin drive motor can be flipped on the horizontal adjustment arm, the direction may be opposite of what is shown on the decal.



SPIN SPEED POTENTIOMETER DIAL RPM

Adjusts the speed of reel rotation when you have the grind selector switch set at variable speed spin.

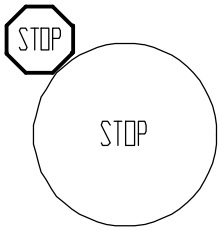
GUARD DOORS MUST BE SHUT FOR SPIN DRIVE TO OPERATE.



GETTING TO KNOW YOUR GRINDER (Continued)

PUSH-PULL EMERGENCY STOP BUTTON

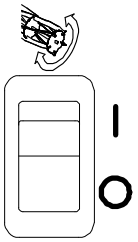
Push in to cut all power to the control panel functions. This removes power from all motors, including the grinding motor, traverse motor, spin motor, etc. To restore power, pull up on button and press the Start button.



SPIN MOTOR SWITCH On / Off

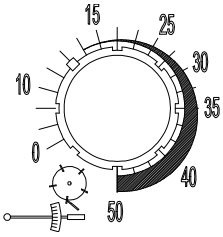
Turn the Spin Motor on and off.

GUARD DOORS MUST BE SHUT FOR GRIND MOTOR TO OPERATE.



RELIEF TORQUE DIAL

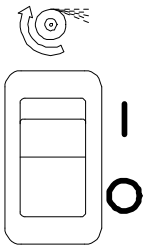
Adjusts the Spin Drive Motor torque (the torque holding the reel blade to the relief finger) when Grind Selector Switch is set at variable Torque Relief.



GRINDING WHEEL MOTOR SWITCH On / Off

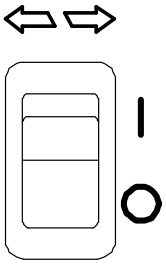
Turn the Grinding Wheel Motor on and off.

GUARD DOORS MUST BE SHUT FOR GRIND MOTOR TO OPERATE.



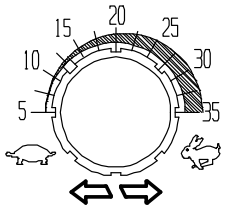
TRAVERSE MOTOR SWITCH

Turns the traverse drive motor ON/OFF.



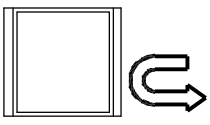
TRAVERSE SPEED POTENTIOMETER DIAL - FT / MIN

Adjusts the speed of the left & right movement of the Grinding wheel.



TRAVERSE REVERSE SWITCH

Reverses the direction of the grinding head if pushed when the head is moving.



FRONT AND REAR MOWER MOUNTING

The mowing unit should be placed in the machine with the rear roller on the table and front roller held in the front tooling. The front tooling can be moved side to side along the tooling bar so they can be positioned as far apart as necessary to accommodate all reel widths. Decals on the tooling bar make it easy to position the tooling based on the width of the reel. To move the tooling, loosen the knob located at the front of the tooling base and slide tooling along the tooling bar. The tooling should be located as close to the frame as possible leaving the maximum room to use the position gauge (the gauge will be discussed in the alignment section). The horizontal position is attained by using the hand wheel located at the front of the tooling. If you are grinding a Quick Adjust mowing unit (QA7 or QA5), use the decals located on the tooling to quickly position the reel. There are two positions for each reel depending on how the front roller is mounted. See FIG 2.

If you are using the all-position brackets, the vertical and horizontal position can be adjusted by loosening the knobs located on the side of the tooling and moving to a new set of pins.

Verify that the reel is positioned properly for the spin wheel and relief wheel by checking the travel limits, both wheels will need to have clearance to come off the reel on both sides. Checking during setup will eliminate the need for major adjustments and alignments when going from spin grinding to relief grinding. When the mower is in place lock it into position by tightening all knobs. Lift the rear roller onto the angled bracket and clamp the roller firmly by squeezing the clamp handle.

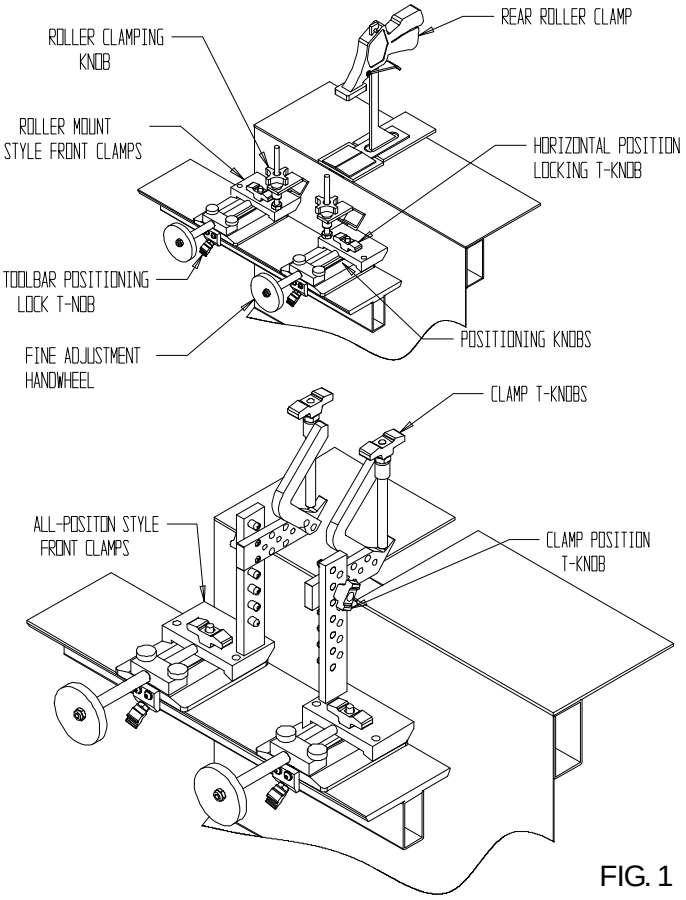


FIG. 1

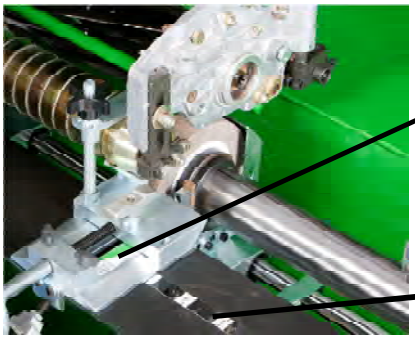


FIG. 2

REEL POSITION

The reel should be positioned so that it is at a one o'clock or 30° angle position in reference to the grinding wheel. See FIG 3. If the all-position brackets are used try to position the unit so that the bottom of the reel is between 1.50-2.00" [38-51MM] off the table. When using the roller mount style tooling try to maintain the one o'clock position and check for clearance between the reel and grinding wheel. Verify that the proper relief angle can be achieved with this setting and make any adjustments if necessary.

If you are grinding a QA7 or QA5 reel using the roller style mounts, use the decals located on the tooling to obtain the optimal position to grind the reel. See fIG 2

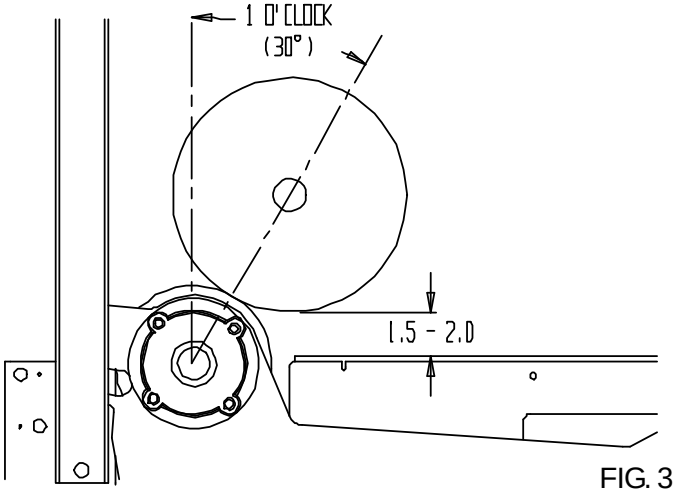


FIG. 3

TRAVERSE ENGAGEMENT AND RELEASE

The belt that drives the relief and spin hubs left and right can be engaged and released by flipping the clamp located on the bottom of the grinding head assemblies. Moving the lever to the left will engage the belt and moving it to the right will disengage the belt. The tip can be adjusted if necessary to increase or decrease the tension on the belt. See adjustments in the service manual for more details.

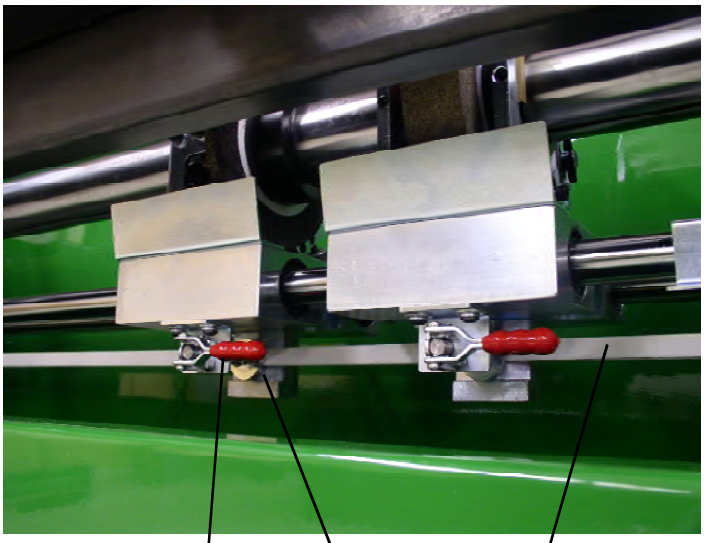


FIG.4

THE BELT CLAMP TIP IS ADJUSTED AT THE FACTORY TO ALLOW THE BELT TO SLIP IF THE HUB COMES IN CONTACT WITH SOMETHING. CAUTION SHOULD BE USED WHEN ADJUSTING THE TIP. IF THE CLAMP IS OVER-TIGHTENED, THE BELT WILL NOT SLIP WHICH MAY CAUSE DAMAGE TO THE MACHINE OR REEL.

TRAVERSE PROXIMITY SWITCHES

Two movable proximity switches determine the left and right limits of grinding head assembly. An LED on the switch lights when the grinding head gets close to the head of the proximity switch. The sensors are mounted in the Proximity Brackets located on the traverse shafts. The brackets can easily be slid along the shafts for quick and easy travel limit adjustments. When switching from the spin mode to the relief mode, the brackets will need to be lifted off the shafts and snapped back on the shafts in the proper position.

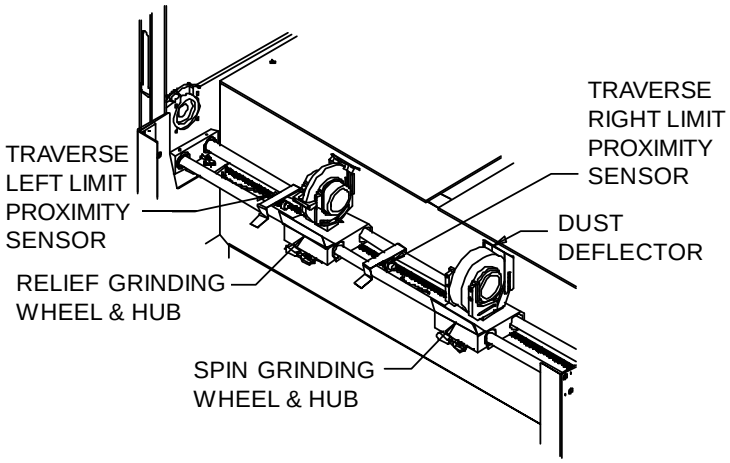

TRAVERSE LEFT LIMIT PROXIMITY SENSOR
TRAVERSE RIGHT LIMIT PROXIMITY SENSOR
DUST DEFLECTOR
RELIEF GRINDING WHEEL & HUB
SPIN GRINDING WHEEL & HUB

FIG. 5

SPIN/RELIEF GRINDING HEAD

This grinder is equipped with separate spin and relief grinding wheels. When the setup is done properly the reel will be only need to be positioned and aligned once for both cycles. The spin wheel is located on the right side of the machine and is wider than the relief wheel. Move the wheel that is not being used as far to that side as possible to give the maximum amount of room to setup and operate the machine. The proximity sensors must be moved so that the wheel in use is between the two sensors. Make sure that the wheel that is not in use is not engaged to the drive belt.

GETTING TO KNOW YOUR GRINDER (Continued)

RELIEF ANGLE ADJUSTMENT

Rotating the finger system around the grinding wheel will change the relief angle. By loosening the large ratchet handle the finger system can be rotated to achieve the factory angles, or whatever angle you select. See FIG. 6. By rotating the finger forward the relief angle will decrease and rotating it rearward the relief angle will increase. Retighten the ratchet handle when adjustment is correct.

RELIEF WHEEL DIAMETER ADJUSTMENT

As the wheel wears, the finger system will need to be adjusted to maintain the correct gap between the fixed finger and wheel. To move the finger system loosen the small ratchet handle. See FIG. 6. The gap between the fixed finger and the grinding wheel should be between .06" [1.5 mm] and .18" [4.6 mm] depending on the amount of existing relief on the reel. Retighten the ratchet handle after the adjustment is made.

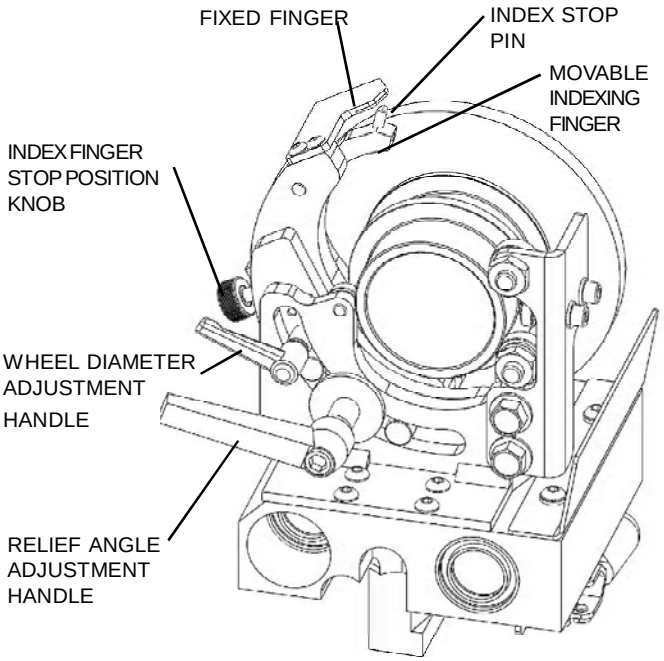


FIG. 6

INDEX FINGER ADJUSTMENTS

The Relief Assembly includes two fingers. See FIG. 6. The Fixed Relief Finger hold the blade in position during the relief grind process. The Movable Index Stop Finger moves from the Relief Finger Side (back side) of the reel blade when traversing from right to left, to the grinding wheel side (front side) of the reel blade when traversing from left to right. The indexing finger allows the grinder to index to the next blade automatically during the relief grind. Improper adjustment of the relief fingers assembly may result in a bad grind or possibly damage to the reel or machine.

The Index Finger Stop Position Knob adjusts where the Index finger stops when the reel blade indexes. See FIG. 6. Proper position of this stop is critical to allow the reel blade to smoothly transition from the Index Finger to the Fixed Finger.

IMPORTANT! After adjusting the Index Finger Stop Position Knob there should be 1/32" [0.8 mm] clearance between the index finger and the reel blade when you push on the index finger. This will allow the Fixed Relief Finger to guide the reel blade during the relief grind cycle. The Reel blade should never be riding on the Index Finger when grinding.

The Index Stop Pin is height adjustable. It should be adjusted to catch the reel blade and still leave enough clearance to the reel spider after the relief is ground to the depth required.

There is a forward position stop on the Finger system located near the pivot point of the Index Finger. This will only need to be adjusted if there is a clearance issue with the finger when it travels forward. See FIG 7.

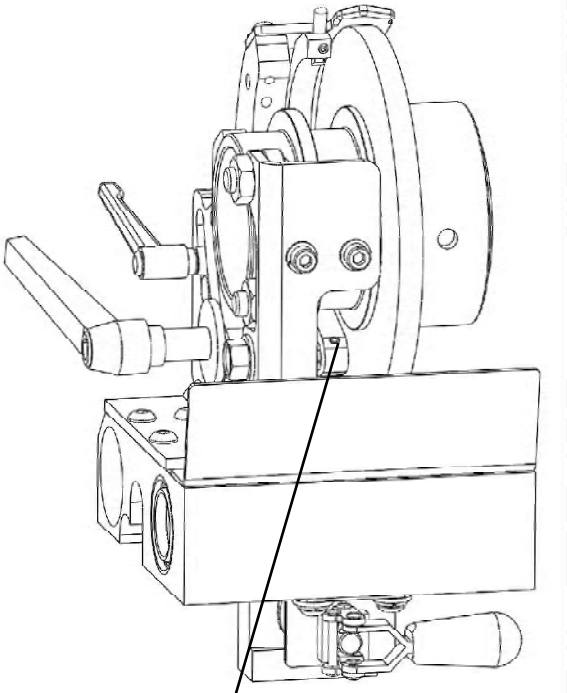


FIG. 7

ALIGNMENT GAUGE

A properly ground reel should be cylindrical. All taper must be ground out of the reel. To ensure the reel will be ground correctly it **MUST** be aligned precisely prior to grinding. The digital alignment gauge is used for accurate reel setup. The gauge is used for setting the horizontal alignment and checking for taper within thousands of an inch. The digital gauge allows you to measure one end of the reel by extending the slide rail until you make contact with the center shaft of the reel. See FIG. 8. By measuring at the far left and the far right on the center shaft you can adjust the horizontal alignment using the front tooling adjustment knobs until the alignment is within .005 inches [.13mm].

When this is completed, you can then reset the gauge to zero on the center shaft, retract the gauge slide and measure the outer surface of a reel blade. By comparing the readings on the left side of the reel to the right side of the reel, you can determine exactly how much taper you have in the reel. Compensating for taper will be explained later in the grinding procedure.

NOTE: The gauge can be set for both inch and metric readout.

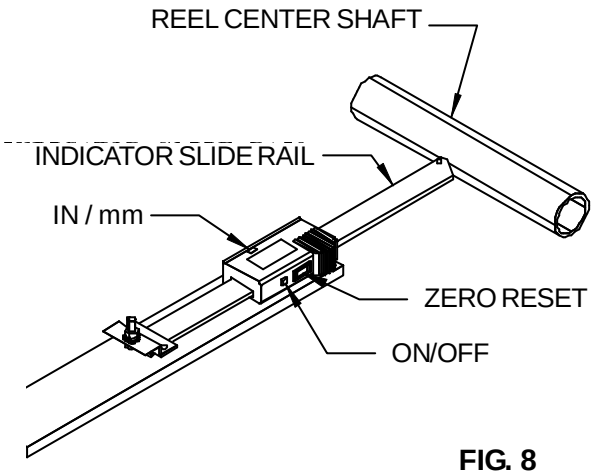


FIG. 8

PREPARE MOWING UNIT FOR SHARPENING

Always follow the procedures specified in the cutting unit manual when preparing the unit for sharpening. It is recommended that the reel to be sharpened is thoroughly cleaned. Remove the wheels and bed bar, if possible, from the reel. **The bedknives should be sharpened when the reel is sharpened.** Inspect, adjust and/or replace any worn or damaged bearings. Make sure the reel bearings are in good working condition and adjusted properly so the reel turns easily by hand.

Because this grinder mounts the reel using the reel rear roller and front roller if applicable, the bearings in the rollers must be in good repair with no free play. **The front and rear rollers must be properly aligned parallel to the reel prior to grinding.**

! REELS WITH EXCESS TENSION ON THE BEARINGS WILL BE EXTREMELY DIFFICULT TO SPIN GRIND AND COULD CAUSE DAMAGE TO THE REEL OR THE SPIN DRIVE MECHANISM ON YOUR GRINDER. NO MORE THAN 25. IN. LBS MAXIMUM TORQUE LOAD TO ROTATE THE REEL IS ALLOWED OR DAMAGE TO THE SPIN DRIVE COULD OCCUR.

FIG. 9

LIFTING REEL INTO POSITION

The RG5500 grinder does not come standard with a lift device. If the facility does not have a lift, it is recommende that the winch and boom kit or Rear Lift Platform is usec .

WINCH & BOOM KIT

The Winch & Boom kit mounts to the back right side c the cabinet. When using the Winch & Boom, positio the cutting unit behind the machine and secure th spreader bar to the cutting unit. Use the winch to lift th unit and swing the reel into the working area of th machine. (Refer to manual in kit for further instructions See FIG. 9 - Available with a Manual or Electric winch.

REAR LIFT PLATFORM

The Rear Lift Table is a portable platform that can be use to raise the reel up level to the grinder. The reel can b rolled onto the platform with the front of the reel facing th front of the grinder. With rear roller clamp removed th reel can be rolled from the platform into the machine fror the rear. The Platform Lift uses a 12V rechargeabl system to power the platform and can be moved aroun the facility on the 4 caster wheels .
See FIG. 10

FIG. 10

INSTALL REEL

Move the reel to the approximate position having the rear roller on the tabletop, and front roller on the front roller Mounts.

MAKE SURE THE GRINDING WHEEL IS LOW ENOUGH TO CLEAR THE REEL. YOU CAN LOWER THE GRINDING WHEEL BY TURNING BOTH HANDWHEELS COUNTERCLOCKWISE.

Position front reel in the center of the machine. Move the roller mounts as far out as possible to the ends of the front roller. (See FIG 11). Use the decals on the tooling bar to aid in the positioning of the front tooling. Check for clearance to the tooling, front roller and frame with both the spin and relief wheels. This will ensure that you will not have to move the reel between the spin and relief grinding. NOTE: On large reels it may be necessary to offset the reel slightly from center to allow the spin drive to be mounted on the appropriate side of the cutting unit.

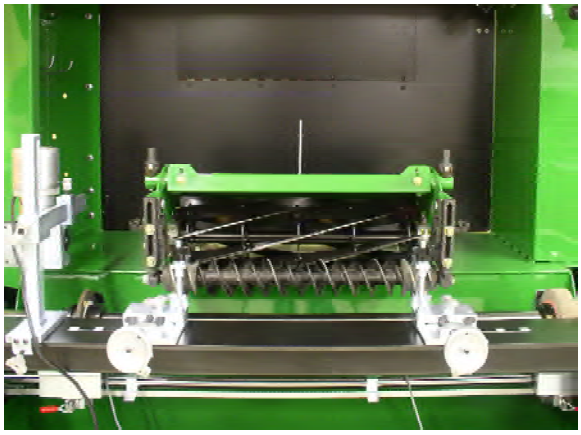


FIG. 11

Place the rear roller onto the rear roller clamp. (See FIG 12).

If using the all-position brackets, set the vertical height of the clamps so that the bottom of the reel is 1.5-2.0 inches [38-51mm] above the table. It is also recommended to mount the support arm with as little extension from the all position bracket as possible leaving just enough clearance for mounting the reel in the “V” of the support arm.

FIG. 12

Position the reel in and out by adjusting the front handwheels. The reel should be positioned so that the reel shaft is located at a 1 o’clock or 30° position to the grinding wheel. See figure 13. If there are clearance issues the reel can be moved forward or backward to resolve this issue. If you are grinding a QA5 or QA7 reel use the decals located on the tooling to quickly locate the reel in the optimal position. See FIG 2. After the reel is positioned correctly lock down the front roller and tighten the rear clamp. Make sure all knobs are tight before grinding.

FIRMLY TIGHTEN ALL LOCKING KNOBS BEFORE GRINDING. ANY LOOSE KNOBS, CLAMPS OR BEARINGS WILL ADVERSELY AFFECT THE GRIND QUALITY.

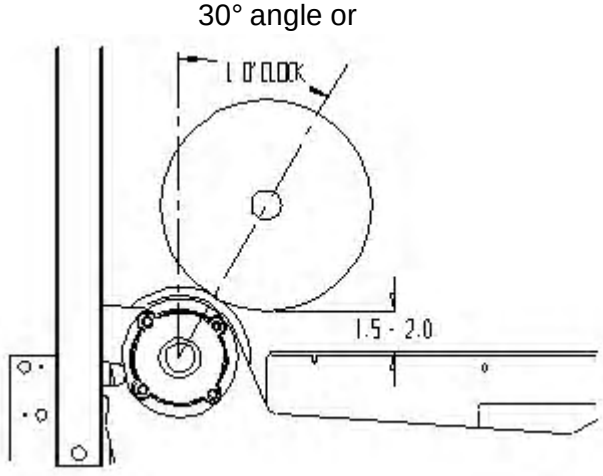


FIG. 13

ALIGN THE REEL

IMPORTANT: When measuring to the reel center shaft always make sure you are contacting an area free of dirt and grass.

The digital gauge horizontal extension bracket is vertically adjustable to allow the digital gauge to be positioned to avoid any reel frame member. In addition, the mounting of the vertical slide to the horizontal weldment has three positions. Removed the knob on the side to adjust the tilt of the vertical slide if necessary to avoid a reel frame member. See FIG. 14.

Before aligning the cutting unit, loosen the horizontal locking knobs on the tooling, to allow the cutting unit to be adjusted in the horizontal plane. See FIG. 14.

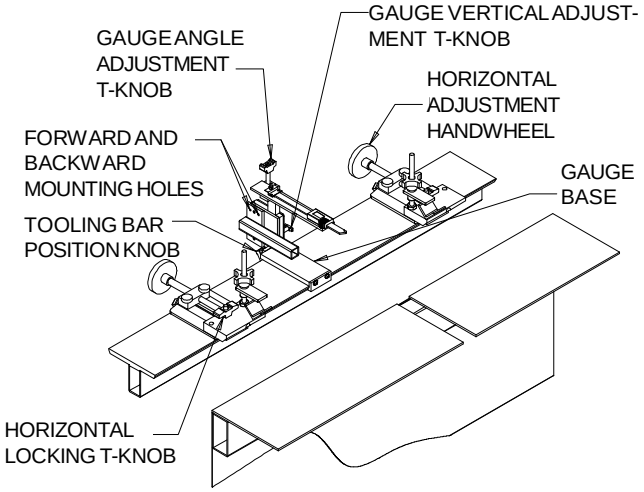


FIG. 14

To align the cutting unit, move the digital gauge assembly as far as possible to the left side of the reel. Extend the digital gauge making sure the tip of the gauge is centered on the reel center shaft. See FIG 15. With the gauge pressed against the reel center shaft, set the gauge to zero. Retract the gauge and move to the right side of the reel and measure to the center of the reel shaft. Do not rotate the reel shaft except for a minimum amount if there are clearance issues to the reel blades. With the gauge against the center shaft, adjust the horizontal handwheel until the gauge reads zero. Repeat adjustments going from one side to the opposite side until the alignment is within .005" [.13 mm].

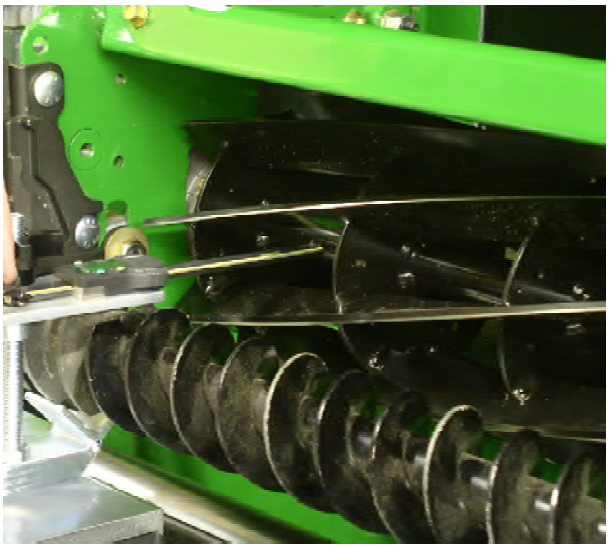


FIG. 15

CHECKING FOR TAPER

First, measure the left side of the reel as far to the left as possible with the digital alignment gauge, make sure the tip of the gauge is centered on the reel center shaft. Set the gauge to zero, then measure to the edge of one blade. Remember or write this number down. Move to opposite side and do the same thing. Compare the two numbers; the difference is the amount of taper in the **radius** of the wheel.

NOTE: TO OBTAIN A CORRECT TAPER READING TO BE USED WITH THE TAPER CHART LATER, THE READING MUST BE TAKEN AS CLOSE TO THE ENDS OF THE REEL AS POSSIBLE GIVING THE MAXIMUM DISTANCE BETWEEN READINGS.

To remove the taper in the reel, the side of the reel that is larger will need to be infed heavier to remove this extra material.

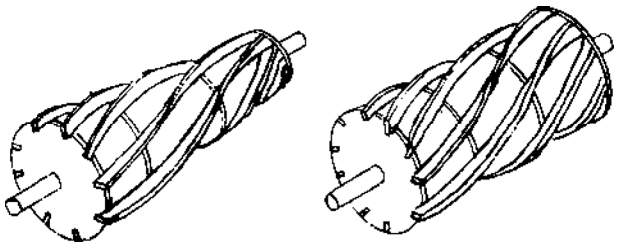


FIG. 16

Remove the gauge and store the digital gauge on the pin located on the front right side of the machine. The gauge base can be placed inside the machine out of the way.

ALIGNMENT OF GRINDING SHAFT TO REEL

To align the grinding shaft to the reel bring the shaft up so that the spin wheel is about ¼ inch [6 mm] from the reel blades. Move the spin wheel to one side of the reel and raise the grinding shaft until the wheel just touches the blade. Move the wheel to the other side of the reel and bring the shaft up until the wheel just touches. Recheck from side to side and make minor adjustments until the wheel touches the same on both ends of the reel. The grind shaft is now aligned vertically to the reels outer diameter. Zero the gauges located on the vertical adjustment housing. Check for high spots in the reel by moving the wheel the length of the reel while spinning the reel. If there are high spots lower the shaft equally on both ends and zero out the gauges again.

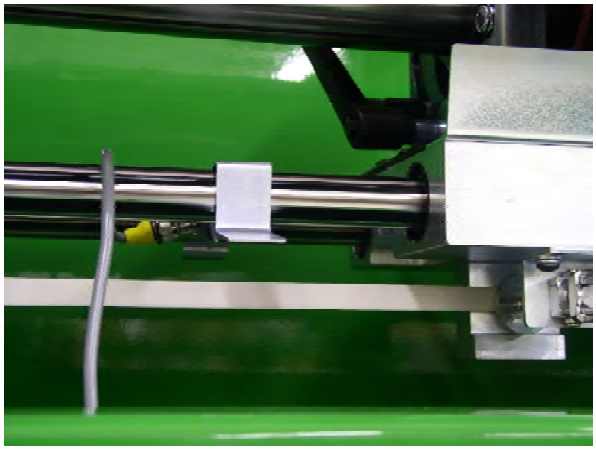


FIG. 17

SETTING THE TRAVERSE LIMITS

Move the grinding wheel to the right until the wheel has cleared the reel by approximately ¼ inch [6 mm] (if clearance to the frame allows). Disengage both the relief and Spin grinding assemblies from traverse belt. Turn the Traverse speed potentiometer to zero and turn on the Traverse Motor Switch. This will activate the proximity sensors. Move the right Traverse Travel Limit switch in until the light on the proximity sensor illuminates. Move the wheel to the opposite end, clearing the reel as mentioned above, and set the left Traverse Travel Limit Switch. (Fig 17) Engage the traverse belt and slowly turn the Traverse Speed up. Allow the wheel to traverse from end to end to verify the switches stop and reverse the direction of the grinding wheel. Verify that the grinding wheel travels fully off the reel at each end. Note: If the reel will hit the frame, then adjust travel sensors so the wheel does not contact the frame.

! IF THE REEL FRAME EXTENDS BELOW THE REEL ITSELF, MAKE SURE THE STOP IS SET SO THAT THE GRINDING WHEEL DOES NOT RUN INTO THE FRAME WHILE GRINDING.

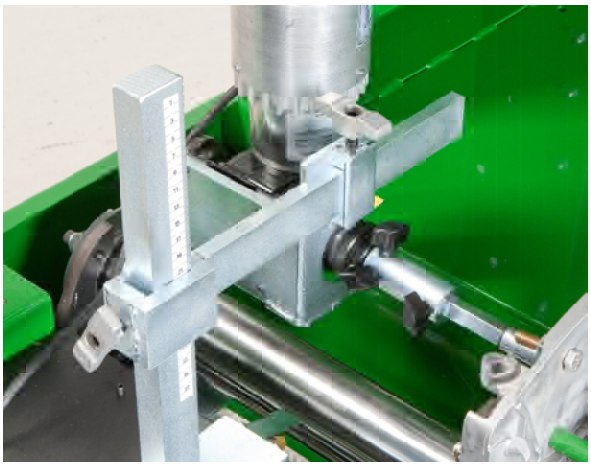


FIG. 18

ATTACHING THE VARIABLE SPEED SPIN DRIVE UNIT TO THE REEL

The spin drive unit attaches to the end of the reel shaft or a drive system component. Consult the cutting unit manual for proper spin drive placement and attachment. Determine which side to mount the spin drive. This will generally be the same drive system component used for backlapping. See FIG. 18.

IMPORTANT: When spin grinding, the reel should turn in the same direction as the grinding wheel. See FIG. 19.

Before positioning the spin unit let us familiarize ourselves with the available adjustments and coupler/drive assemblies. See FIG. 20.

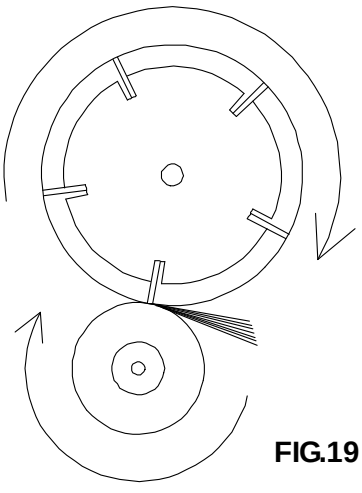


FIG.19

OPERATING INSTRUCTIONS (Continued)

Knob A—
Allows the spin unit to be loosened and moved in and out.
Knob B-
Allows the spin unit to be loosened and moved up and down.
Knob C –
Allows the spin assembly to be loosened from the tooling bar and moved side-to-side.

When positioning the spin unit it may be necessary to complete several of the above adjustments to properly align the spin unit to the reel.

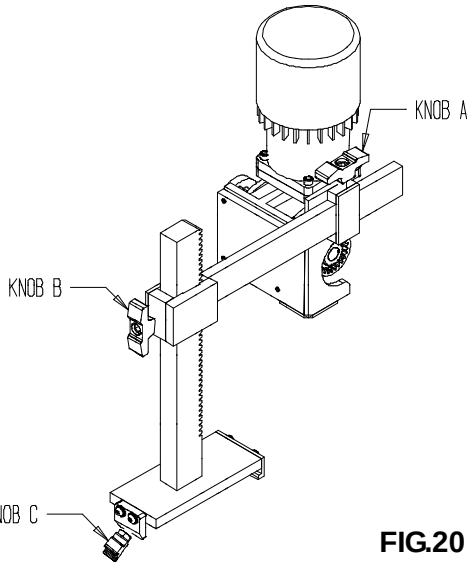


FIG.20

THE COUPLER ASSEMBLY INCLUDES:
RUBBER SLEEVE COUPLER: This is placed in the corresponding flange coupler already mounted in the spin drive shaft. See FIG. 21.
DRIVE COUPLER ADAPTER ASSEMBLY: This is mounted to the rubber coupler.
Note: If the Drive Coupler Adapter is removed, there is a short square drive shaft attached to the Adapter Sleeve. This can be used with a socket if there is limited space.
ADAPTER SLEEVE: Connects the rubber coupler to the square drive adapter.
SQUARE DRIVE ADAPTER: This is inserted into the drive coupler adapter. The square drive adapter has approximately 2" [51 mm] of movement. It will be necessary to move this when attaching reel to spin drive unit. This adapter shaft has a groove machined into it on the opposite end of the snap ring. This groove is there to advise that you have reached the maximum extension of the square drive shaft. If you cannot connect the reel without extending past this groove, then the spin unit must be repositioned on the tooling bar (Knob C). A 1/2" [12.7 mm] square drive socket or reel drive adapter is used to connect the square drive adapter to the reel.

NOTE: The 1/2" [12.7 mm] square drive socket or adapter that is placed on the reel when spin grinding is ***NOT*** included with the grinder. See next page for details

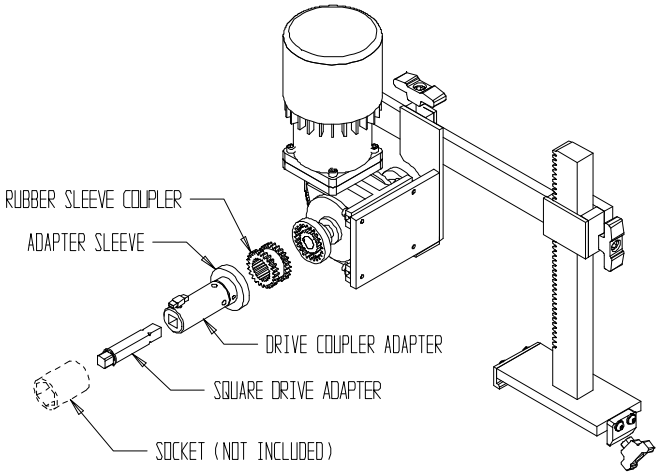


FIG. 21

DO NOT EXTEND SQUARE SHAFT PAST GROOVE, INSTEAD REPOSITION SPIN UNIT.

The following procedures will make setting up the spin drive unit easier.

1. Move spin drive unit close to the reel. Align the shaft on the spin drive with the nut on reel by completing the necessary adjustments discussed above.
2. Now slide the spin drive unit approximately 7" [18 cm] from the reel drive coupling point and securely fasten to the tooling bar tightening the locking knob. (Knob C)
3. Place the proper 1/2" [12.7 mm] square drive socket or adapter on the reel drive nut and then insert the square drive shaft into the socket. Place the adapter sleeve over the drive shaft and insert the drive coupler adapter assembly into it. Finally place the rubber coupler onto the drive coupler adapter. See FIG. 21.
4. By holding the square drive shaft firmly into position with your left hand you will be able to move the other components to the right and insert the rubber coupler into the flange on the spin drive unit. When this is done tighten the T-Knob on the adapter sleeve to hold all parts in place.
5. Finally readjust the spin drive unit if it is not in alignment.

NOTE: It is not necessary to have perfect alignment but it must be close enough so that the coupler remains engaged and that excess torque is not applied to the reel.

OPERATING INSTRUCTIONS (Continued)

REEL DRIVE ADAPTERS

This grinder is equipped with an adapter that transfers the rotation from the spin drive gear box coupling to a 1/2" male square. To operate the grinder you need an adapter from this 1/2" male square to the reel shaft. These adapters are **NOT** included with this grinder.

Most cutting units In recent years have a male or female spline on the end of the reel shaft that connects to a hydraulic or electric motor shaft.

If you have a reel shaft that has an internal threaded end which you can access, install a hex head bolt or socket head screw of that thread size with a jam nut very tight so it does not loosen while spin grinding and then drive with a 1/2" drive socket for that hex or hex key size.

JOHN DEERE REELS

COUPLERS- The external spline shafts use a female splined coupler between the reel shaft and the male splined hydraulic motor shaft. The spline is either an 8,9 or 11 toothed spline. Our recommendation is to purchase the female splined coupler from John Deere and weld it to a short 1/2" square socket extension. Note: The 8 tooth spline adapter can be used with a Square Socket Drive Adapter [3/8" square male to 1/2" square female] without welding.

REEL DIA	REEL TYPE	Recomendation
5"	G, M	Has an 8-T, External shaft. Use coupler AET11038
7"	H	Has an 11-T, External shaft. Use coupler TCA12581 (NOTE: THIS CAN ALSO BE DRIVEN WITH A 1.25 HEX SOCKET)
7"	26H	Has a 9-T, External shaft. Use coupler AET11310 (NOTE: THIS CAN ALSO BE DRIVEN WITH A 1.25 HEX SOCKET)
8"	ESP	Has a M16 X 2, External shaft. Use nut A31869 and drive with a 24mm Hex Socket.
5"	WBGM	Use a 3/8"-24 UNF Bolt, and drive with a 9/16 Hex Socket
5"	QA5	Has an 8-T, Internal Spline shaft. Use part AMT3022, to make an adapter.
7"	QA7	Has an 11-T, Internal Spline shaft. Use a 1.25 Hex Socket or make and adapter from part TCA18958.

TORO EQUIPMENT:

Toro uses an 8 tooth female spline or a 9 tooth female spline on their reels. The 8 tooth female spline can be affectively driven with a Square Socket Drive Adapter [3/8"square male to 1/2" square female]. The 9 tooth spline requires an adapter. Our recommendation is to purchase adapter Toro tool part numberTOR-4074 available from K-Line Industries, Inc. 315 Garden Ave. Holland, MI 49424.

JACOBSEN EQUIPMENT:

Below is a list of drive systems based on the cutting units:

* 5" reel units can be driven from the non hydraulic motor end of the reel. Install a 3/8" bolt in the end of the reel shaft with a jam nut very tight so it does not loosen while spinning. Use a 9/16" socket to drive. They can also be driven from the hydraulic motor end by pressing a Square Socket Drive Adapter [3/8" square male to 1/2" square female] into the splined reel coupling Jacobsen part number 337370 and use this pressed assembly as the adapter.
* 7" reel units can be driven from either end. The reel unit has a coupler attached to the reel shaft a both ends. Purchase Jacoben part number 4102440 Reel Motor Shaft and weld the hydraulic motor shaft form the kit to a 1/2" socket and use this weldment as the adapter.
* Tri-King reel units can be driven on older pulley drive units with a 9/16" socket on the 3/8" bolt that holds the pulley. On newer splined units, purchase the splined reel coupling Jacobsen part number 132002 and press a Square Socket Drive Adater [3/8" square male to 1/2"square female] into the splined reel coupling and use this assembly as the adapter.

RECOMENDATION FOR SPIN DRIVE RPM AND TRANSVERSE SPEED WHEN GRINDING

SPIN DRIVE RPM

SPIN DRIVE RPM IS VERY IMPORTANT IN ACHIEVING A QUALITY GRIND. USE CARE IN ESTABLISHING THE SPIN DRIVE RPM, PER THE INSTRUCTIONS BELOW.

Generally, the Spin Drive RPM will be between 180 RPM (45%) and 380 RPM (100%). The speed required to spin a specific reel is dependant on reel diameter, the number of reel blades, and reel hardness. For all reels, there is an optimum Spin Speed where there is an **AGGRESSIVE**, yet smooth grind as you spin grind the reel. Your objective is to spin grind the reel as aggressively and as fast as possible while maintaining top quality.

It is recommended to start grinding each reel at a Spin Speed of 200 RPM (50%) and evaluate the RPM by adjusting higher and lower to optimize the Spin Speed for that reel. If the Spin Speed is incorrectly set, you can experience two problems, grinding wheel dressing or grinding wheel resonance. Each of these problems is explained below.

On some reels, especially small diameter high blade count reels if the Spin Speed RPM is set too high, the reel can act as a dresser to the grinding wheel. There can develop what appears to be a very aggressive grind (as if the infeed has self infed) and then a sudden stop of grinding with no grinding wheel to reel contact. If this occurs, your Spin Speed was set too high and you effectively dressed your grinding wheel.

Some reels have a resonant RPM where the reel goes into harmonics with the grinding wheel and the resonance vibrates the grinder and results in a very bad grind. By changing the Spin Speed to a higher or lower RPM you will move out of the resonant range.

After determining the best Spin Speed RPM for a reel, note the RPM on the "Set-up Chart" in the "NOTES" section. (Set-up chart is located at the back of this manual) By noting the correct RPM, you will avoid evaluating the Spin Speed the next time you grind the reel. Also note the spin drive position using the position decals on the spin mounting and documenting the position on the "Set-up Chart".

TRAVERSE DRIVE RPM

The Traverse Speed potentiometer is adjustable from approximately 5 feet per minute [1.5 meters per minute] to 20 feet per minute (6 meters per minute). It is recommended to grind between 15 and 20 feet per minute (4 and 6 meters per minute).

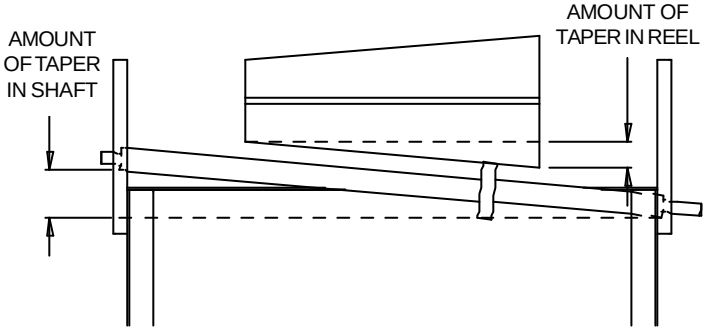
Grinding at a slower traverse speed, 10 feet per minute (3 meters per minute) as an example, will give a better finish but will extend the grind cycle time. Grind finish versus grind cycle time is controlled by the choice of the operator.

COMPENSATING FOR TAPER.

To maintain the best quality of cut, the taper in a reel must be removed returning the reel to a true cylinder. To remove the taper that was measured with the gauge (as discussed previously in Checking For Taper Section) first align the reel to the shaft by the touch method (as discussed previously). Then drop the side of the grinding shaft that is high (the smaller side of the reel) the amount suggested in the chart
[**See chart on next page or Compensation for Taper Chart located on the machine].**

Example: For a reel that is 22 inches [56 cm] long with a measured taper of .12" [3 mm], the adjuster on the smaller side of the reel would be dropped to read-.546 [13.9 mm].

This will bring the grinding shaft parallel to the reel center shaft. Zero out the digital gauges located on the vertical adjustment towers and infeed both side equally until the wheel just touches the large side of the reel. Zero the gauges again, you are now ready to grind and remove the taper. When grinding, the wheel will only make contact with the larger side of the reel and will gradually grind more as the larger areas are ground away. The reverse button may be used to help speed of this process. Grind until full contact is made across the entire length of the reel, and the reel is sharp the entire width of all blades.



OPERATING INSTRUCTIONS (Continued)

TAPER ADJUSTMENT SETUP CHART
REEL WIDTH

MEASURED TAPER	16	18	20	22	24	26	28	30	32
0.005	0.033	0.029	0.025	0.023	0.021	0.019	0.017	0.016	0.015
0.010	0.066	0.058	0.051	0.045	0.041	0.038	0.035	0.032	0.030
0.015	0.100	0.086	0.076	0.068	0.062	0.056	0.052	0.048	0.045
0.020	0.133	0.115	0.102	0.091	0.082	0.075	0.069	0.064	0.060
0.025	0.166	0.144	0.127	0.114	0.103	0.094	0.086	0.080	0.075
0.030	0.199	0.173	0.153	0.136	0.123	0.113	0.104	0.096	0.089
0.035	0.233	0.202	0.178	0.159	0.144	0.132	0.121	0.112	0.104
0.040	0.266	0.231	0.203	0.182	0.165	0.150	0.138	0.128	0.119
0.045	0.299	0.259	0.229	0.205	0.185	0.169	0.156	0.144	0.134
0.050	0.332	0.288	0.254	0.227	0.206	0.188	0.173	0.160	0.149
0.060	0.399	0.346	0.305	0.273	0.247	0.225	0.207	0.192	0.179
0.070	0.465	0.403	0.356	0.318	0.288	0.263	0.242	0.224	0.209
0.080	0.532	0.461	0.407	0.364	0.329	0.301	0.277	0.256	0.238
0.090	0.598	0.519	0.458	0.409	0.370	0.338	0.311	0.288	0.268
0.100	0.665	0.576	0.508	0.455	0.412	0.376	0.346	0.320	0.298
0.120	0.798	0.692	0.610	0.546	0.494	0.451	0.415	0.384	0.358

Small side of reel downward adjustment.

SPIN GRINDING

After the reel has been aligned and the taper has been adjusted for, you are now ready to spin grind the reel. Close the front and rear guard doors. (The grinding wheel and spin motors will not work unless the doors are closed.) Position the spin/relief selector switch to the spin position. Turn on the Grinding Motor and the Spin Drive Motor switch. Set the spin speed at approximately 200 rpm (Refer to Spin Drive RPM on pervious page). Make sure spin rotation is the same as the grinding wheel – clockwise (CW) looking from right end. See FIG 22.

IMPORTANT: When the reel turns in the same rotation as the grinding wheel, the point of contact where they meet is in opposite directions.

Turn on the traverse drive motor switch and turn the speed dial up to approximately 15- 20.

IMPORTANT: If the grind starts getting heavier, adjust the grinding head down until you can travel the full length of the reel without heavy grinding.

When grinding, infeed the wheel approximately .005" [.13 mm] at a time. Allow the grinding wheel to travel back and forth across the reel 2 to 3 times before infeeding. The spin grinding is completed when full contact is made across the entire length of the reel, the entire width of all blades and the reel is sharp. The last passes should be a normal .005 [.13 mm] infeed grind at a slow traverse speed (approx. 8 feet per minute [2.5 meters per minute] or slower). After the last pass turn the grinder off.
(Note: Due to the positioning of the reel to the 1 o'clock position, infeeding the wheel .015 inches [.38 mm] will remove .010 inches of material.)

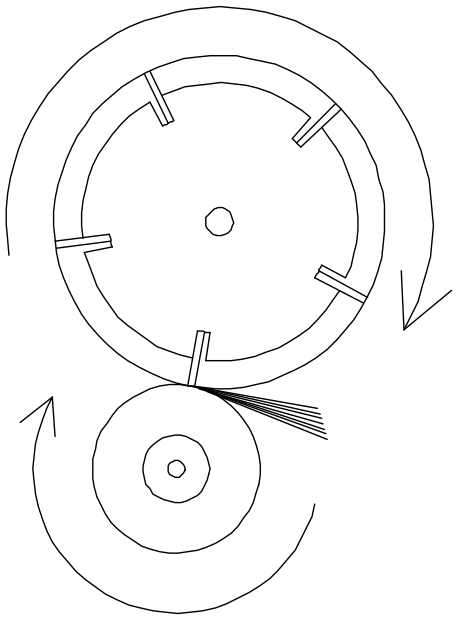


FIG.22

RELIEF GRIND

To change over to the relief grind, disengage the spin grinding wheel hub assembly and park it as far to the right as possible. Bring the relief hub assembly over to the reel for relief grinding. This will require repositioning the travel proximity switch brackets.

Note: As the reel diameter gets smaller and the number of blades increases the relief grinding wheel diameter works better when smaller. For example a 5" [127 mm] diameter greensmower reels with 11 blades achieve a greater relief angle with a smaller grinding wheel.

REEL SPIRAL

Check to see if your mowing unit is normal or reverse helix.
NOTE: As you look into the guide finger on **THE NEXT PAGE, IT SHOWS THE NORMAL REEL HELIX.** As you look into the guide finger on the **FOLLOW PAGE, IT SHOWS THE REVERSE REEL HELIX.** The high point of the relief finger is on the right hand side of the grinding wheel.

Most mowing units are normal helix.

! THE HIGH POINT OF THE RELIEF FINGER MUST ALWAYS BE AT THE CORNER OF THE GRINDING WHEEL THAT IS MAKING CONTACT WITH THE REEL. ON THIS GRINDER THAT IS ALWAYS THE RIGHT HAND SIDE OF THE GRINDING WHEEL.

WHEEL DRESSING

If the grinding wheel becomes loaded with material it may be necessary to dress the wheel. The RG5500 is supplied with a diamond dresser. To use, place the dresser on the spin drive horizontal arm in the area where the wheel is to be dressed. Adjust the dresser to the appropriate position and angle. Raise the grinding wheel so it is nearly touching the dresser.

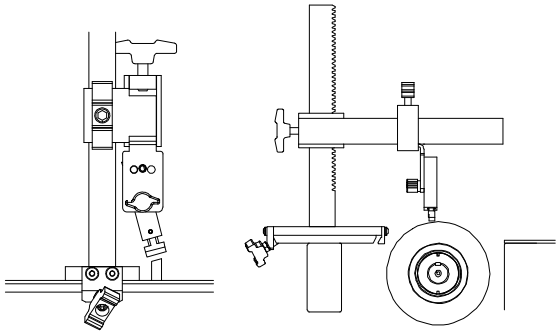
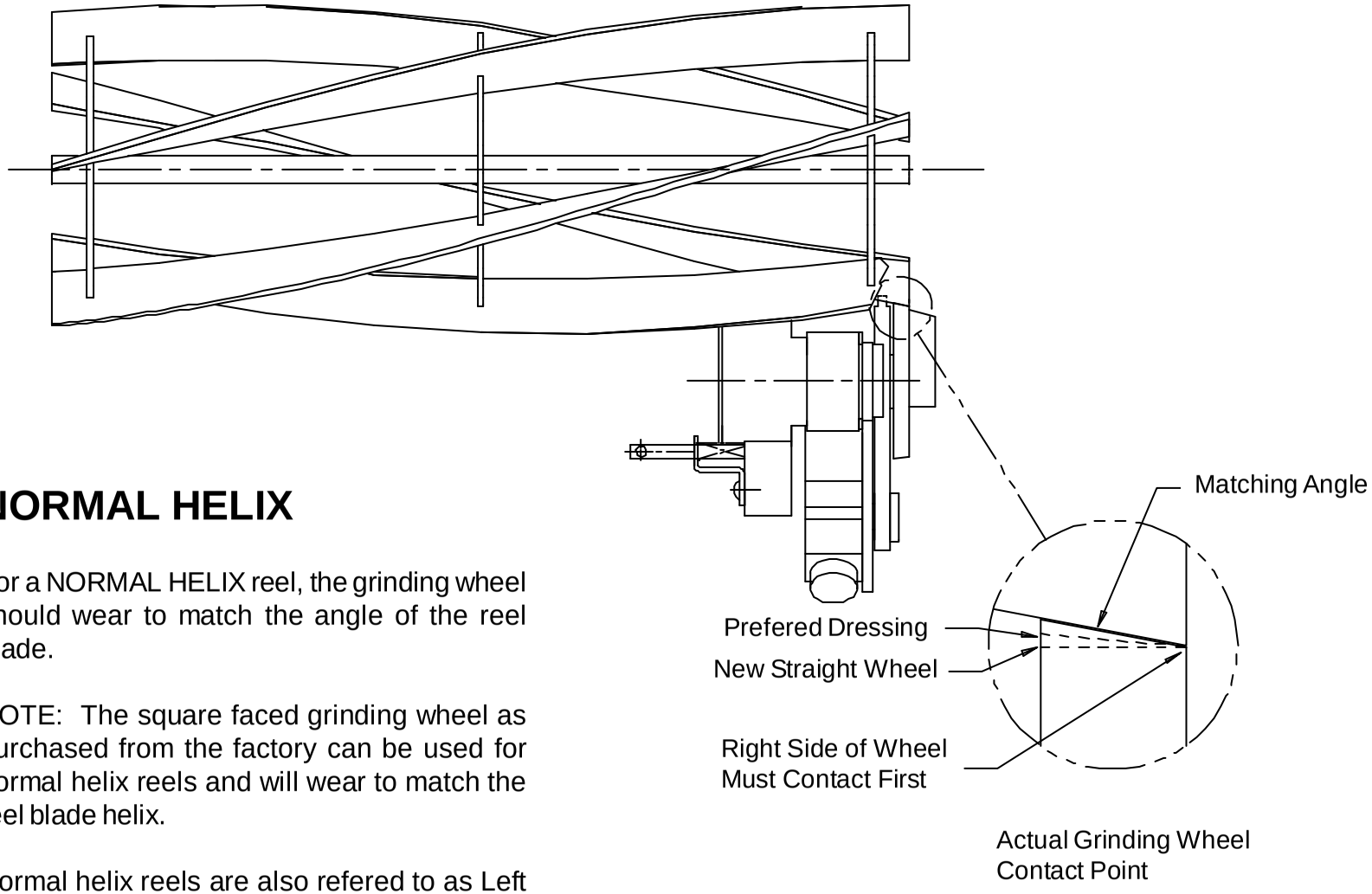


FIG.23

For dressing the spin grinding wheel, put the dresser in the straight position. Close the doors and infeed the spin grinding wheel into the dresser and then move the grinding wheel side to side against the dresser which will dress the full face of the wheel.

Typically only infeed .002" [.05 mm] per pass. Infeeding too heavy can damage the dresser or the wheel. Continue dressing until the wheel looks new or the proper shape is achieved.

For dressing the relief wheel, put the dresser at the correct angle for normal helix reel or reverse helix reel. Close the doors and infeed the relief grinding wheel into the dresser. Do **NOT** move the grinding wheel from side to side.

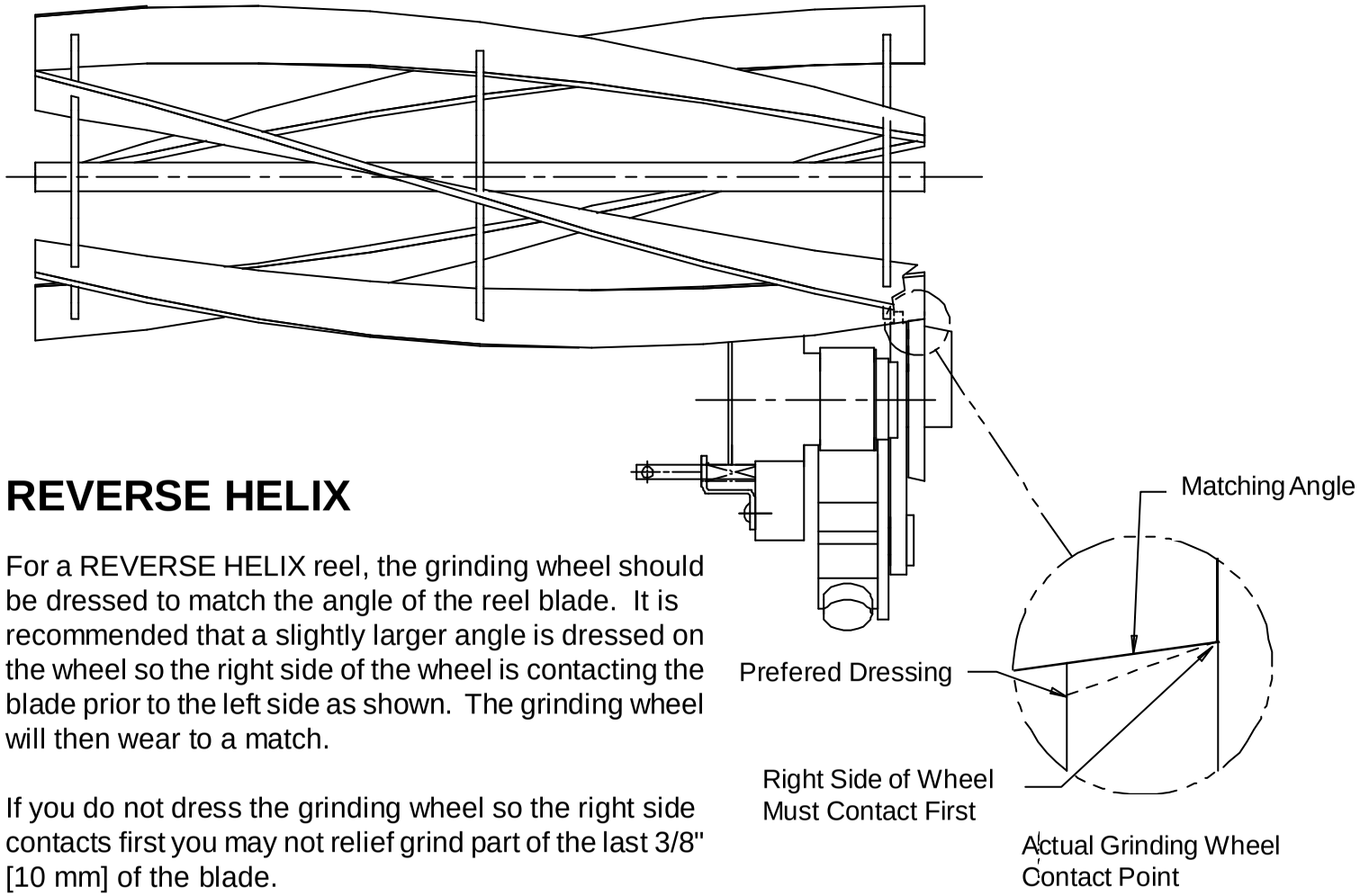


NORMAL HELIX

For a NORMAL HELIX reel, the grinding wheel should wear to match the angle of the reel blade.

NOTE: The square faced grinding wheel as purchased from the factory can be used for normal helix reels and will wear to match the reel blade helix.

Normal helix reels are also refered to as Left Hand Side Cutting First (Looking from front - grass entry position.) or Right Throw reels (Throws grass to the right of operator position.)



REVERSE HELIX

For a REVERSE HELIX reel, the grinding wheel should be dressed to match the angle of the reel blade. It is recommended that a slightly larger angle is dressed on the wheel so the right side of the wheel is contacting the blade prior to the left side as shown. The grinding wheel will then wear to a match.

If you do not dress the grinding wheel so the right side contacts first you may not relief grind part of the last 3/8" [10 mm] of the blade.

NOTE: A wheel that has been worn to match a normal helix can generally be removed and reversed to grinder reverse helix. reels.

Reverse helix reels are also refered to as Right Side Cutting First reels (Looking from the front - grass entry side) or Left Throw reels (Throws grass to the left of the operator position.)

RELIEF GRINDING CONTINUED

Reset the Traverse Limit Proximity Switch so the grinding wheel clears the reel at both ends by approximately 1/16" [1.5 mm].

Set Grind Selector switch to variable torque relief. (**IMPORTANT:** The Spin Drive Rotation switch must be in the **OFF** position when changing the Grind Selector switch.) Set the Spin Drive Rotation switch to rotate the reel into the stop finger, counterclockwise (CCW) when looking at the right side. **NOTE:** Relief torque reel rotation is always opposite spin rotation. DO NOT TURN ON THE SPIN MOTOR SWITCH.

With the traverse in the home position (right side traverse proximity sensor lit), infeed the grinding relief wheel up while manually rotating the reel until the index finger touches the blade.

Turn the traverse speed potentiometer to zero, then turn the traverse drive motor on. With the belt drive disengaged, manually move the Relief Grinding Assembly to the left until the reel blade is on the fixed relief finger.

At this point, if necessary, you can adjust the relief angle by adjusting the relief finger position. To make this adjustment loosen the Relief Angle Adjustment handle. See FIG 24. Rotating the finger system down will increase the relief angle and rotating the finger system up will decrease the relief angle. Adjusting the relief angle or index finger stop position is easiest with the relief head at the left side of the reel.

Once you have the Grinding Head positioned with a reel blade resting on the Fixed Relief Finger high point, adjust the indexing finger stop. There should be about 1/32" [.8mm] to 1/16" [1.5mm] free play of the Index Finger to the back of the blade. The Index Finger is spring loaded to the up position or against the back of the reel blade. To check free play, push down on the Index Finger. See FIG 24. If there is no free play of the Index Finger you want to rotate the Adjustable Index Finger Stop Position Knob counter clockwise. If there is more than 1/16" [1.5 mm] free play you want to rotate the Index Finger Stop Position Knob clockwise.

IMPORTANT: The Index Finger position must be set to stop the reel blade and allow traversing to the left without the blade hitting the side of the relief finger. This position must also allow approximately 1/32" [.8 mm] free play of the index finger when the blade is resting on the high point of the relief finger. See FIG. 24.

Infeed the grinding wheel up until there is minimal clearance between the reel blade and the grinding wheel.

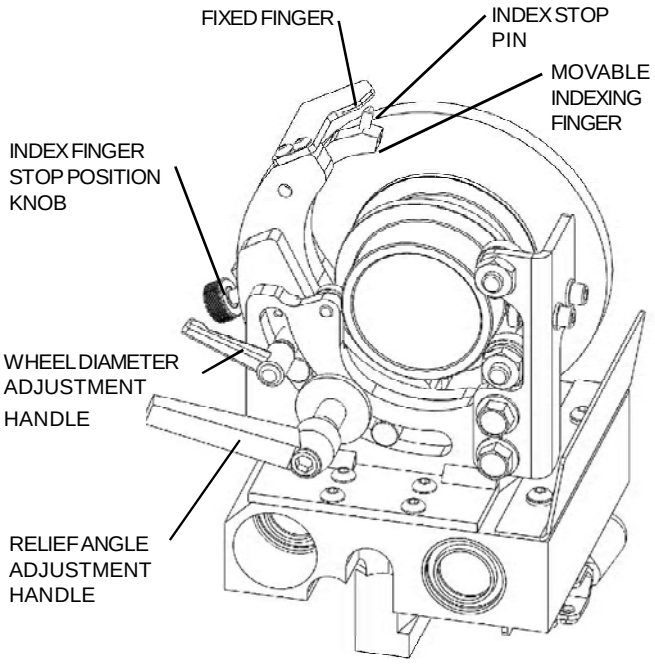


FIG 24.

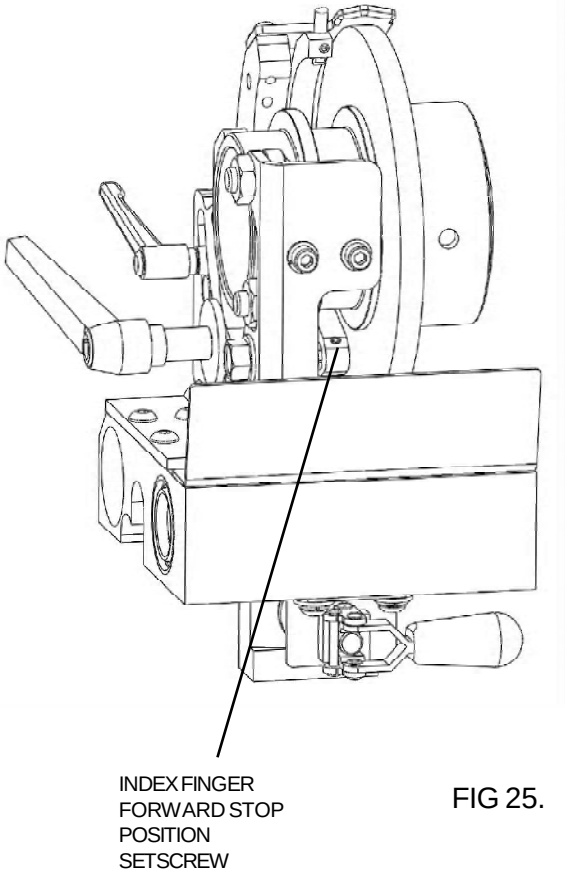


FIG 25.

RELIEF GRINDING CONTINUED

Close the front and rear doors.

Turn the Spin Motor Switch on.

NOTE: The spin drive will apply torque load against the fingers.

Set the Relief Torque Potentiometer at approximately 15. **IMPORTANT:** Free turning reels may need a lower value than 15 and stiff reels or reels with a drive train may need a higher torque than 15.

Engage the traverse belt and traverse all the way to the left watching for proper clearance between the grinding wheel and the blade. Check for proper clearance between the index finger (after releasing from blade at far left position) and the front side of the blade on the return trip to the home position. Also verify clearance to the reel blade support spiders. If necessary the forward stop can be adjusted. See FIG 25.

Stop the traverse in home position and check for a proper blade index. The traverse drive control is factory set with a two second dwell time before it reverses the carriage travel. This is to allow time for the reel to rotate and the index finger to catch the next blade. If necessary the dwell time can be adjusted (refer to Control Board Potentiometer Adjustments section in the Assembly and Service Manual).

Turn on the Spin Drive Motor (should already be on) and the Grinding Wheel Motor switch.

Turn the traverse speed potentiometer to proper grinding speed. Slowly infeed the grinding wheel until you are able to grind the full length of the reel evenly. A typical infeed is between .010" to .020" [.25-.50 mm]. Be sure you have ground all the blades before infeeding further.

NOTE: Traverse speed should be set to approximately 15 fpm. If you are removing a small amount of stock on initial infeeds, faster traverse speeds are suggested. If you are removing a large amount of stock on later infeeds, slower traverse speed may be required.

After the relief grind is complete remove turn all switches to off (it is also good practice to push in the E-stop button) then remove cutting unit from the machine. Use caution as the reel blades will be sharp.

REEL SETUP CHART

Note: These dimensions will vary due to reel position in frame, reel dia., height of cut, roller position, etc. Use these values as a guide only.

REEL MAKE, MODEL & HEIGHT OF CUT	FRONT TOOLING MOUNT TYPE	FRONT TOOLING MOUNT POSITION	TOOLING DISTANCE APART	SPIN DRIVE MOUNTING SIDE R OR L	SPIN DRIVE POSITION	SPIN SPEED SETTING	SPIN TORQUE SETTING	TRAVERSE SPEED SETTING	NOTES

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FRONTIER

ASSEMBLY AND SERVICE MANUAL

FOR SERIAL NUMBERS: 1XFRG55XPD0000025 AND UP

SPIN / RELIEF
REEL MOWER GRINDER

RG5500

FRONTIER™

(REV. 5-8-13)

DEALER PREPARATION/INSTALLATION CHECK LIST IS LOCATED IN THE OPERATOR'S MANUAL

SEE OPERATOR'S MANUAL FOR INSTALLTION CHECKLIST

It is the responsibility of the dealer to complete the procedures listed in the Operators Manual then review this checklist with the customer upon the delivery or the sale of this equipment.The installation training goes over the basic operational functions of the equipment. To ensure adequate training, we require that the following items are reviewed by your John Deere Dealer. Please check off to ensure that you understand the following items before the installation training is complete:

Safety

IMPORTANT SAFETY MESSAGE FOR OWNERS/OPERATORS OF REEL GRINDERS

Safety is a primary concern in the design, manufacture, sale, and use of reel grinders. As a manufacturer of reel grinders, we want to confirm to you, our customers, our concern for safety. We also want to remind you about the simple, basic, and common sense rules of safety when using a reel grinder. Failure to follow these rules can result in severe injury or death to operators or bystanders.

It is essential that everyone involved in the assembly, operation, transport, maintenance, and storage of this equipment be aware, concerned, prudent, and properly trained in safety. Always use proper shielding as specified by the manufacturer.

Our current production machines include, as standard equipment, guards or shields for the grinding wheel, safety signs and an operator's manual. Never bypass or operate the machine with any of the guards or the safety devices removed.

Read and fully understand all the safety practices discussed on pages 4 and 5 of this manual. All safety rules must be understood and followed by anyone who works with reel grinders.

Before operating a reel grinder, an operator must read and understand all of the information in the operator's manual and in the safety signs attached to the product. A person who has not read or understood the operator's manual and safety signs is not qualified to operate the unit. Accidents occur often on machines that are used by someone who has not read the operator's manual and is not familiar with the equipment. If you do not have an operator's manual or the current production safety signs, contact the manufacturer or your dealer immediately.

Reel grinders are designed for one-man operation. Never operate the grinder with anyone near, or in contact with, any part of the grinder. Be sure no one else, including bystanders, are near you when you operate this product.

Following these simple, basic safety rules, as well as others identified in the owner's manual and in the product safety signs, will help minimize the possibility of accidents and increase your productivity in using this product. Be careful and make sure that everyone who operates the grinder knows and understands that this is a very powerful piece of machinery, and if used improperly, serious injury or death may result. The final responsibility for safety rests with the operator of this machine.

TO THE DEALER:

Assembly and proper installation of this product is the responsibility of the John Deere dealer. Read manual instructions and safety rules. Make sure all items on the Preparation Check List in the Operator's Manual are completed before releasing equipment to the owner.

TO THE OWNER:

Read the Operator's Manual before operating your Frontier equipment. Keep this and all manuals handy for ready reference. Require all operators to read the Operator's Manual carefully and become acquainted with all adjustments and operating procedures before attempting to operate the equipment. Replacement manuals can be obtained from your selling dealer.

The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Please observe all safety information in the Operator's Manual and safety decals on the equipment.

For service, your authorized John Deere dealer has trained mechanics, genuine Frontier service parts, and the necessary tools and equipment to handle all of your service needs.

Use only genuine Frontier service parts.

SAFETY INSTRUCTIONS

Safety Awareness Symbols are inserted into this manual to alert you to possible ***Safety Hazards***. Whenever you see these symbols, follow their instructions.

The ***Warning Symbol*** identifies special instructions or procedures which, if not correctly followed, could result in personal injury.

The ***Caution Symbol*** identifies special instructions or procedures which, if not strictly observed, could result in damage to or destruction of equipment.

1. **KEEP GUARDS IN PLACE** and in working order.

2. **REMOVE WRENCHES AND OTHER TOOLS.**

3. **KEEP WORK AREA CLEAN.**

4. **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use Grinder in damp or wet locations. Machine is for indoor use only. Keep work area well lit.

5. **KEEP ALL VISITORS AWAY.** All visitors should be kept a safe distance from work area.

6. **MAKE WORK AREA CHILD-PROOF** with padlocks or master switches.

7. **DON'T FORCE THE GRINDER.** It will do the job better and safer if used as specified in this manual.

8. **USE THE RIGHT TOOL.** Don't force the grinder or an attachment to do a job for which it was not designed.

9. **WEAR PROPER APPAREL**. Wear no loose clothing, gloves, neckties, or jewelry which may get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.

10. **ALWAYS USE SAFETY GLASSES.**

11. **SECURE YOUR WORK.** Make certain that the cutting unit is securely fastened with the clamps provided before operating.

12. **DON'T OVERREACH.** Keep proper footing and balance at all times.

13. **MAINTAIN GRINDER WITH CARE.** Follow instructions in Service Manual for lubrication and preventive maintenance.

14. **DISCONNECT POWER BEFORE SERVICING,** or when changing the grinding wheel.

15. **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure all switches are **OFF** before plugging in the grinder.

16. **USE RECOMMENDED ACCESSORIES**. Consult the manual for recommended accessories. Using improper accessories may cause risk of personal injury.

17. **CHECK DAMAGED PARTS.** A guard or other part that is damaged or will not perform its intended function should be properly repaired or replaced.

18. **KNOW YOUR EQUIPMENT.** Read this manual carefully. Learn its application and limitations as well as specific potential hazards.

19. **KEEP ALL SAFETY DECALS CLEAN AND LEGIBLE.** If safety decals become damaged or illegible for any reason, replace immediately. Refer to replacement parts illustrations in Service Manual for the proper location and part numbers of safety decals.

20. **DO NOT OPERATE THE GRINDER WHEN UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR MEDICATION.**

SAFETY INSTRUCTIONS

IMPROPER USE OF GRINDING WHEEL MAY CAUSE BREAKAGE AND SERIOUS INJURY.

Grinding is a safe operation if the few basic rules listed below are followed. These rules are based on material contained in the ANSI B7.1 Safety Code for "Use, Care and Protection of Abrasive Wheels". For your safety, we suggest you benefit from the experience of others and follow these rules.

DO

1. **DO** always **HANDLE AND STORE** wheels in a careful manner.
2. **DO VISUALLY INSPECT** all wheels before mounting for possible damage.
3. **DO CHECK MACHINE SPEED** against the established maximum safe operating speed marked on wheel.
4. **DO CHECK MOUNTING FLANGES** for equal and correct diameter.
5. **DO USE MOUNTING BLOTTERS** when supplied with wheels.
6. **DO** be sure **WORK REST** is properly adjusted.
7. **DO** always **USE A SAFETY GUARD COVERING** at least one-half of the grinding wheel.
8. **DO** allow **NEWLY MOUNTED WHEELS** to run at operating speed, with guard in place, for at least one minute before grinding.
9. **DO** always **WEAR SAFETY GLASSES** or some type of eye protection when grinding.

DON'T

1. **DON'T** use a whee that is cracked, **HAS BEEN DROPPED,** or one that is damaged.
2. **DON'T FORCE** a wheel onto the machine **OR ALTER** the size of the mounting hole--if wheel won't fit the machine, get one that will.
3. **DON'T** ever **EXCEED MAXIMUM OPERATING SPEED** established for the wheel.
4. **DON'T** use mounting flanges on which the bearing surfaces **ARE NOT CLEAN, FLAT AND FREE OF BURRS.**
5. **DON'T TIGHTEN** the mounting nut **EXCESSIVELY.**
6. **DON'T** grind on the **SIDE OF THE WHEEL** (see Safety Code B7.2 for exception).
7. **DON'T** start the machine until the **WHEEL GUARD IS IN PLACE.**
8. **DON'T JAM** work into the wheel.
9. **DON'T STAND DIRECTLY IN FRONT** of a grinding wheel whenever a grinder is started.
10. **DON'T FORCE GRINDING** so that motor slows noticeably or work gets hot.

AVOID INHALATION OF DUST generated by grinding and cutting operations. Exposure to dust may cause respiratory ailments. Use approved NIOSH or MSHA respirators, safety glasses or face shields, and protective clothing. Provide adequate ventilation to eliminate dust, or to maintain dust level below the Threshold Limit Value for nuisance dust as classified by OSHA.

TABLE OF CONTENTS

This machine is intended for grinding the reel of reel type mower units <u>ONLY.</u> Any use other than this may cause personal injury and void the warranty.

To assure the quality and safety of your machine and to maintain the warranty, you MUST use original equipment manufactur's replacement parts and have any repair work done by a qualified professional.

ALL operators of this equipment must be thoroughly trained BEFORE operating the equipment.

Do not use compressed air to clean grinding dust from the machine. This dust can cause personal injury as well as damage to the grinder. Machine is for indoor use only. Do not use a power washer to clean the machine.

Low Voltage Relay

The grinder is equipped with a high-low voltage relay which is factory preset at 100-140 VAC. If the power supply line does not deliver 100-140 VAC power under load, the relay will open and trip out the starter. If this occurs, your power supply line is incorrect and must be corrected before proceeding further with the grinder.

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Mechanical Troubleshooting ..... Page 42-43
Exploded Views and parts Lists ..... Page 44-73
Wiring Diagram & Schematic ..... Page 74-76

DAILY MAINTENANCE BY THE OPERATOR

On a daily basis, clean the machine by wiping it off.
On a daily basis, remove all grinding grit from the grinding shaft, traverse shafts, and tooling bar area.
On a daily basis, inspect the machine for loose fasteners or components.
Contact your company's Maintenance Department if damaged or defective parts are found.

DO NOT USE COMPRESSED AIR TO CLEAN GRINDING DUST FROM GRINDER

SERVICE DATA

SKILL AND TRAINING REQUIRED FOR SERVICING

This Service Manual is designed for technicians who have the necessary mechanical and electrical knowledge and skills to reliably test and repair the RG5500 Spin/Relief Grinder. For those without this background, service can be arranged through your local dealer.

This section presumes that you are already familiar with the normal operation of the grinder. If not, you should read the operators manual, or do the servicing in conjunction with someone who is familiar with its operation.

Persons without the necessary knowledge and skills should not remove any panels, shields or attempt any internal troubleshooting, adjustments, or parts replacement.

If you have questions not answered in this manual, please contact your dealer.

TORQUE REQUIREMENTS

Throughout this manual we refer to torque requirements as "firmly tighten" or the like. For more specific torque values, refer to the information below.

Bolts Going Into a Nut, or Into a Thread Hole in Steel.
Refer to the table at the right.

Bolts Going Into a Thread Hole In Aluminum
Use the Grade 2 values in the table at the right.

Socket-Head Screws Going Into a Nut or Steel
Use the Grade 8 values in the table at the right.

Machine Screws
No. 6 screws: 11 in.- lbs (0.125kg - m)
No. 8 screws: 20 in. - lbs (0.23 kg - m)
No. 10 screws: 32 in. - lbs (0.37 kg - m)

	GRADE 2 SMOOTH HEAD	GRADE 5 3 MARKS on HEAD	GRADE 8 6 MARKS on HEAD
1/4 In. thread	6 ft-lbs (0.8 kg-m)	9 ft-lbs (1.25 kg-m)	13 ft-lbs (1.8 kg-m)
5/16 In. thread	11 ft-lbs (1.5 kg-m)	18 ft-lbs (2.5 kg-m)	28 ft-lbs (3.9 kg-m)
3/8 In. thread	19 ft-lbs (2.6 kg-m)	31 ft-lbs (4.3 kg-m)	46 ft-lbs (6.4 kg-m)
7/16 In. thread	30 ft-lbs (4.1 kg-m)	50 ft-lbs (6.9 kg-m)	75 ft-lbs (10.4 kg-m)
1/2 In. thread	45 ft-lbs (6.2 kg-m)	75 ft-lbs (10.4 kg-m)	115 ft-lbs (15.9 kg-m)

ASSEMBLY INSTRUCTIONS

Remove the sides, front, and back of the crate. Remove the plastic bag, shrink wrap and bubble wrap. Remove the metal clips that secure the grinder to the crate base. With a fork lift, raise the grinder from the wood base and set it in its final position. See FIG. 1 and 2.

THE UNIT WEIGHS 1200 LBS. [544 kg]. TO LIFT, USE POWER EQUIPMENT.

Remove shipping straps and window protective sheets.

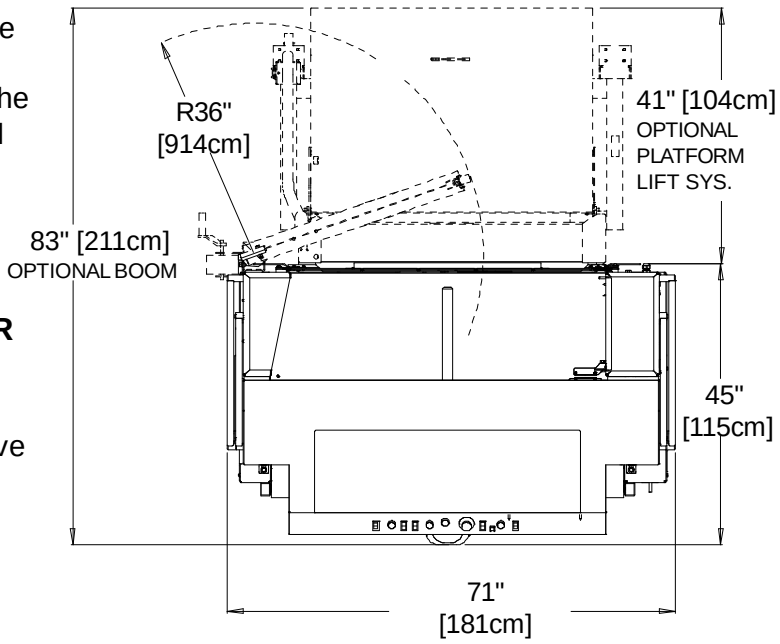
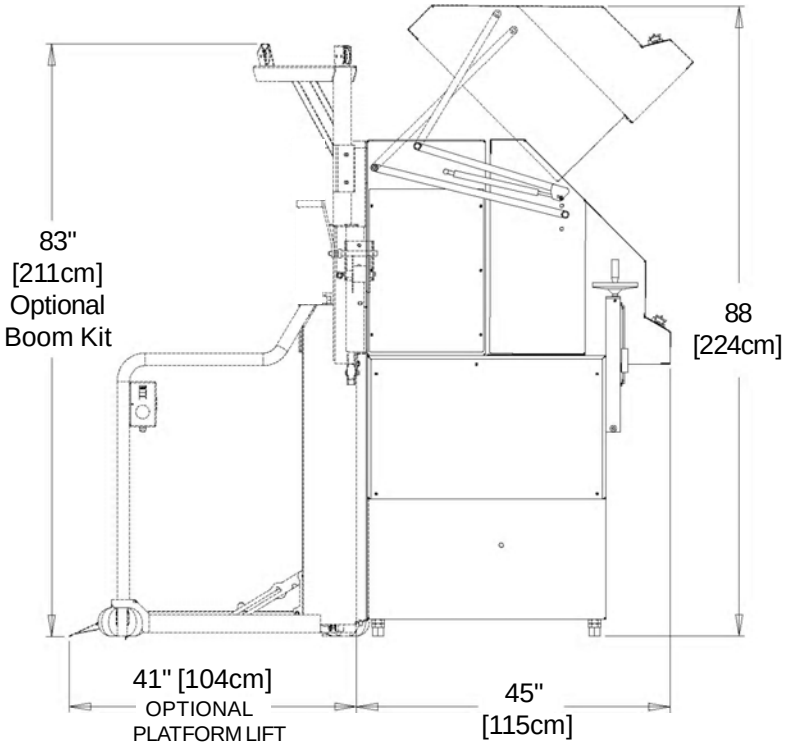


FIG. 1

POSITION BASE

The RG5500 Spin/Relief Grinder will require an operating area of about 119" W x 127" D x 90" H (302 cm x 323cm x 229 cm). The machine operator will operate the unit from the front of the machine. Position the base to allow sufficient operating room in front and to the rear of the machine. See FIG. 1 and 2.

The base should be placed on a relatively level concrete floor, with ample ceiling height to allow for the installation of the unit. Do not place the unit across two concrete slab seams or across a large crack.



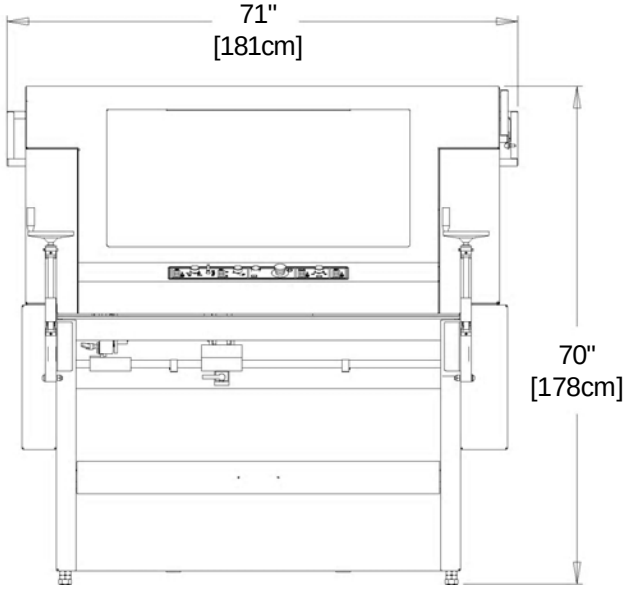
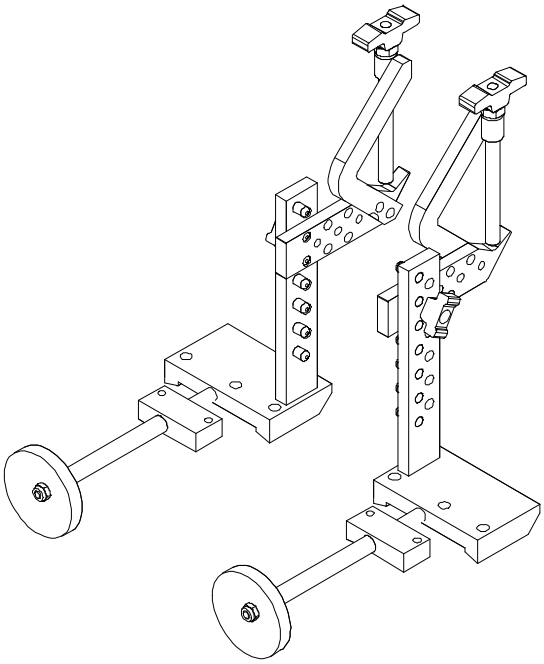


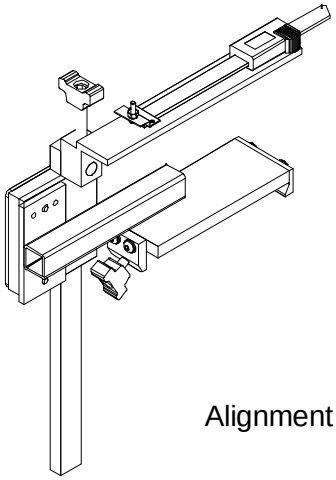
FIG. 2

ASSEMBLY INSTRUCTIONS (Continued)

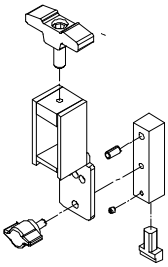
Remove the carton and remove the contents from the carton onto a workbench. The carton includes:



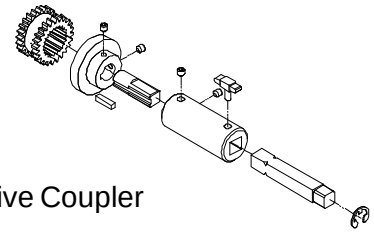
Multi position Brackets



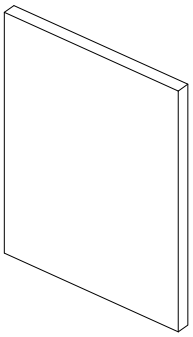
Alignment Gage



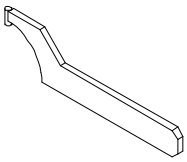
Diamond Dresser



Drive Coupler



Product Packet Assembly
(Operators & Service Manuals)



Spanner Wrench

LEVEL BASE

Place a level on the top of the table and check the unit for level side to side. Adjust the leveling feet as necessary until the machine is level.
See FIG. 3 and 4.

Place a level across the table from front to rear. Adjust the leveling feet as necessary until the machine is level. See FIG. 3 and 5.

When both front to back and side to side leveling procedures have been completed, thread the hex jam nuts up against the nut that is welded to the bottom of the machine. Be careful not to move the leveling feet during when tightening the jam nut. See FIG. 3. Make certain that all four leveling feet are firmly contacting the floor.

Recheck that the machine is level after locking the four feet into position.

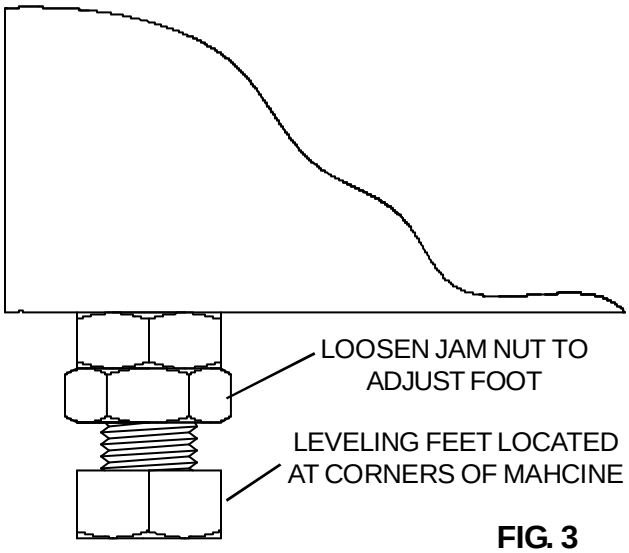


FIG. 3

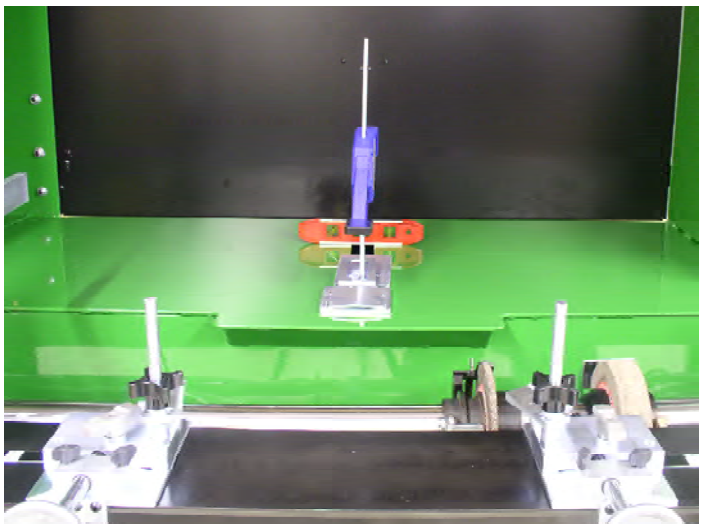


FIG. 4

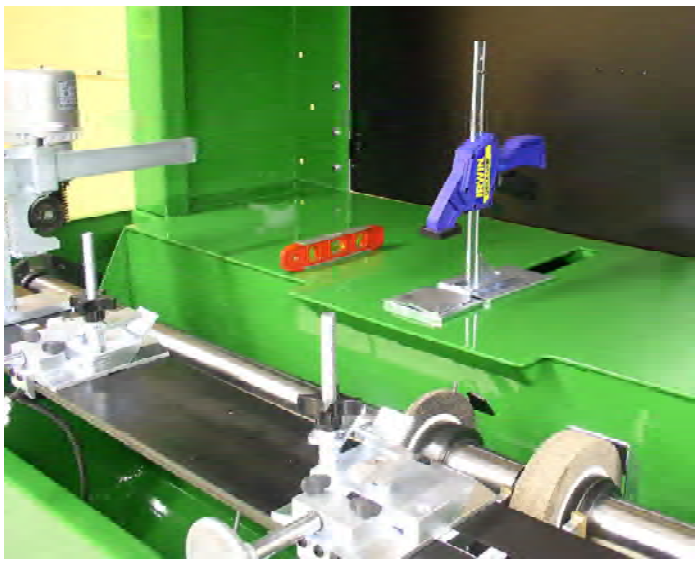


FIG. 5

ASSEMBLY INSTRUCTIONS (Continued)

IMPORTANT GROUNDING INSTRUCTIONS

In case of a malfunction or breakdown, grounding reduces the risk of electrical shock by providing a path of least resistance for electrical current.

This Grinder has an electrical cord with an equipment grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded according to all local or other appropriate electrical codes and ordinances.

Before plugging in the Grinder, make sure it will be connected to a supply circuit protected by a properly sized circuit breaker or fuse. SEE SERIAL NUMBER PLATE FOR FULL LOAD AMP RATING OF YOUR MACHINE.

Never modify the plug provided with the machine--if it won't fit the outlet, have a proper outlet and circuit installed by a qualified electrician.

ALWAYS PROVIDE A PROPER ELECTRICAL GROUND FOR YOUR MACHINE. AN IMPROPER CONNECTION CAN CAUSE A DANGEROUS ELECTRICAL SHOCK. IF YOU ARE UNSURE OF THE PROPER ELECTRICAL GROUNDING PROCEDURE, CONTACT A QUALIFIED ELECTRICIAN.

APPLY POWER

BEFORE YOU APPLY POWER TO THE GRINDER, REFER TO THE "IMPORTANT GROUNDING INSTRUCTIONS" ON PREVIOUS PAGE.

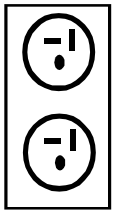


FIG. 6

Plug the control box power cord into a standard 115V AC 20-amp grounded receptacle. See FIG. 6.

IT IS RECOMMENDED THAT THIS SPIN/RELIEF GRINDER HAS ITS OWN PERMANENT POWER CONNECTION FROM THE POWER DISTRIBUTION PANEL, WITH NO OTHER MAJOR POWER DRAW EQUIPMENT ON THE SAME LINE.

IT IS REQUIRED THAT THE POWER DELIVERED TO THIS GRINDER IS 115 VAC - 20 AMPS. THE TOLERANCE ON THIS POWER REQUIREMENT IS +/- 5%. THEREFORE THE MINIMUM VOLTAGE REQUIREMENT IS 109VAC WITH 20 AMPS. VOLTAGE MUST BE CHECKED WITH ALL EQUIPMENT UNDER LOAD (OPERATING) ON THE CIRCUIT.

DO NOT OPERATE THIS GRINDER WITH AN EXTENSION CORD.

DO NOT OPERATE THIS GRINDER ON A GROUND FAULT

A PROPER GROUND IS REQUIRED FOR SAFE OPERATION OF THE EQUIPMENT. VERIFY THAT THE RECEPTACLE GROUND IS A PROPER GROUND BEFORE PLUGGING IN THE MACHINE.

IMPROPER GROUNDING IN YOUR BUILDING MAY RESULT IN A DANGEROUS SHOCK TO THE OPERATOR OR CAUSE THE GRINDER TO MALFUNCTION.

The grinder is equipped with a high-low voltage relay which is factory preset at 100-140 VAC. If the power supply line does not deliver 100-140 VAC power under load, the relay will open and trip out the starter. If this occurs, your power supply line is incorrect and must be correct before proceeding further with the grinder.

WARNING
FACTORY PRESET.
FLASHING GREEN LIGHT INDICATES LOW VOLTAGE.
FLASHING RED LIGHT INDICATES HIGH VOLTAGE DELIVERED TO GRINDER

When installing the grinder, the following guidelines should be used to establish the wire size between the power panel in your building and the grinder receptacle. Note that the wiring in your building must be per code between main power panels and sub panels.

FOR 20 AMP RATED LARGE MACHINES

For 0 to 40 Feet (0 to 12 M) from panel to receptacle = Use 12 Ga. (4.0 mm) Wire.
For 40 to 60 Feet (12 to 18 M) from panel to receptacle = Use 10 Ga. (6.0 mm) Wire.
For 60 to 100 Feet (18 to 30 M) from panel to receptacle = Use 8 Ga. (10.0 mm) Wire.
For 100 to 160 Feet (30 to 48 M) from panel to receptacle = Use 6 Ga. (16.0 mm) Wire.

PERIODIC MAINTENANCE

DAILY MAINTENANCE IS SPECIFIED ON PAGE 6, AND IS TO BE PERFORMED BY THE OPERATOR.

LISTED BELOW ARE PERIODIC MAINTENANCE ITEMS TO BE PERFORMED BY YOUR COMPANY'S MAINTENANCE DEPARTMENT:

1. Clean the dust tray located at the lower front of the machine monthly using a vacuum or by removing it. Pull the tray out until the back of the tray is even with the front of the frame and vacuum it out. To remove continue to pull straight out until the tray is free.

USE CAUTION WHEN PULLING THE TRAY OUT AS THERE IS NO MECHANICAL STOP. WHEN REMOVING TRAY PULL STRAIGHT OUT AND SUPPORT THE TRAY TO PREVENT DUMPING.

2. Inspect the Poly-V belt on the grinding motor for cracking and make any necessary adjustments every three months.

3. Wipe off and lubricate with never-seize, the horizontal adjustment shafts located on the tooling every six months.

4. Wipe off and lubricate with never-seize, the vertical adjustment shafts every six months. Run the arms up and down to coat the working areas of the shaft.

5. Inspect the traverse cog belt for cracking and defects every three months. Remove any grit or dust that may affect the function of the belt. Adjust tension if necessary per procedures called out in the adjustment section. See FIG 9.

6. Clean and lubricate the grinding shaft and traverse shafts every 2 to 4 weeks. Follow the proceedure on the next page.

7. Lubricate grinding shaft bearings with one shot of grease once every 2 years. See FIG 9.

DO NOT GREASE GRINDING SHAFT BEARINGS FOR THE FIRST 2 YEARS. THEY ARE GREASED AT THE FACTORY. GREASING MAY CAUSE THE BEARINGS TO OVERHEAT AND FAIL PREMATURELY.

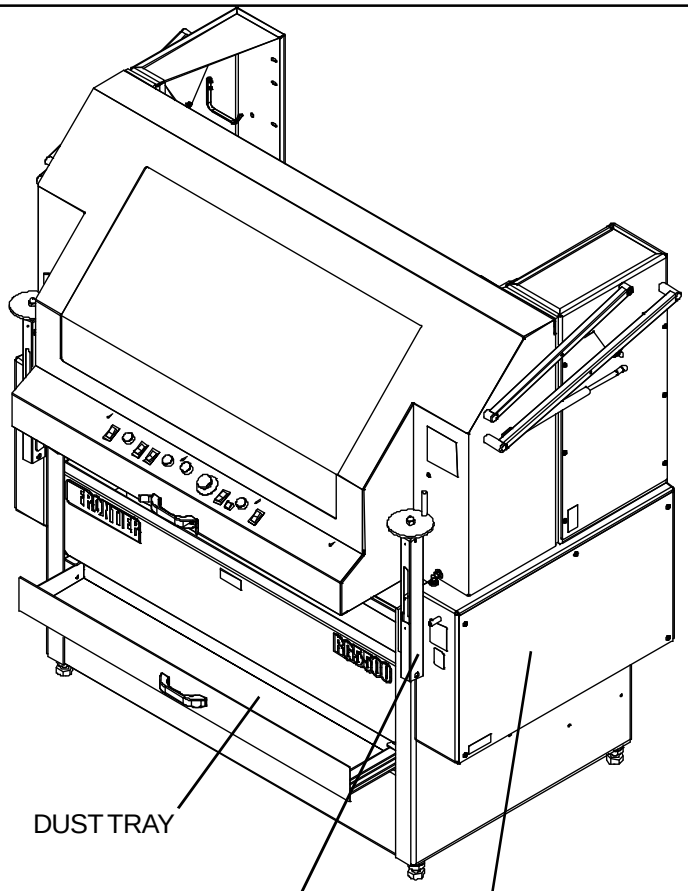


FIG. 7

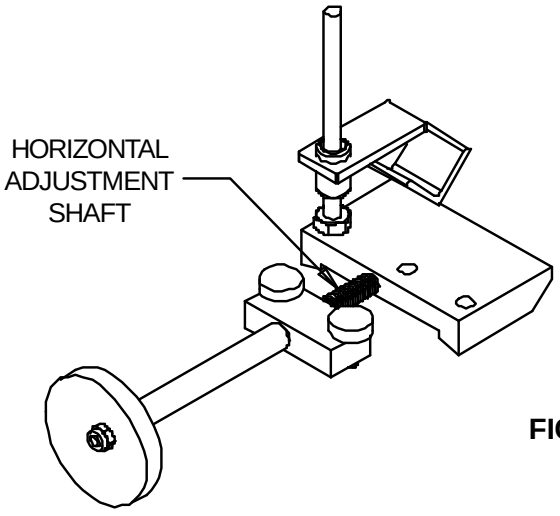


FIG. 8

LUBRICATION

LUBRICATION OF GRINDING SHAFT AND LINEAR BEARINGS

STEP 1 – Thoroughly clean all three shafts.

STEP 2 – Flood spray all three shafts with CRC 3-36 until the lubricant is dripping off the shafts. **(Do not use a Teflon-based lubricant)** Then run the grinding head assemblies back and forth through their full range of travel. This will remove the dust and deposits from inside the wheel flanges. Repeat if necessary until lubrication is clear of deposits. Clean keyways located on the grinding shaft with soft brush.

STEP 3 – With a clean rag, wipe off the excess amount of lubricant from the shafts. Run the grinding assemblies through their range of travel and wipe the shafts after each traverse. Repeat until the shafts are dry to the feel. This completes the lubrication process.

IMPORTANT:
If the unit will be shut down for an extended period of time, more than four weeks, then the shafts and other appropriate parts of the unit should be flooded with lubricant and that lubricant left in place until the unit is brought back into service. When the unit is brought back into service the full lubrication procedure as stated above should be repeated.

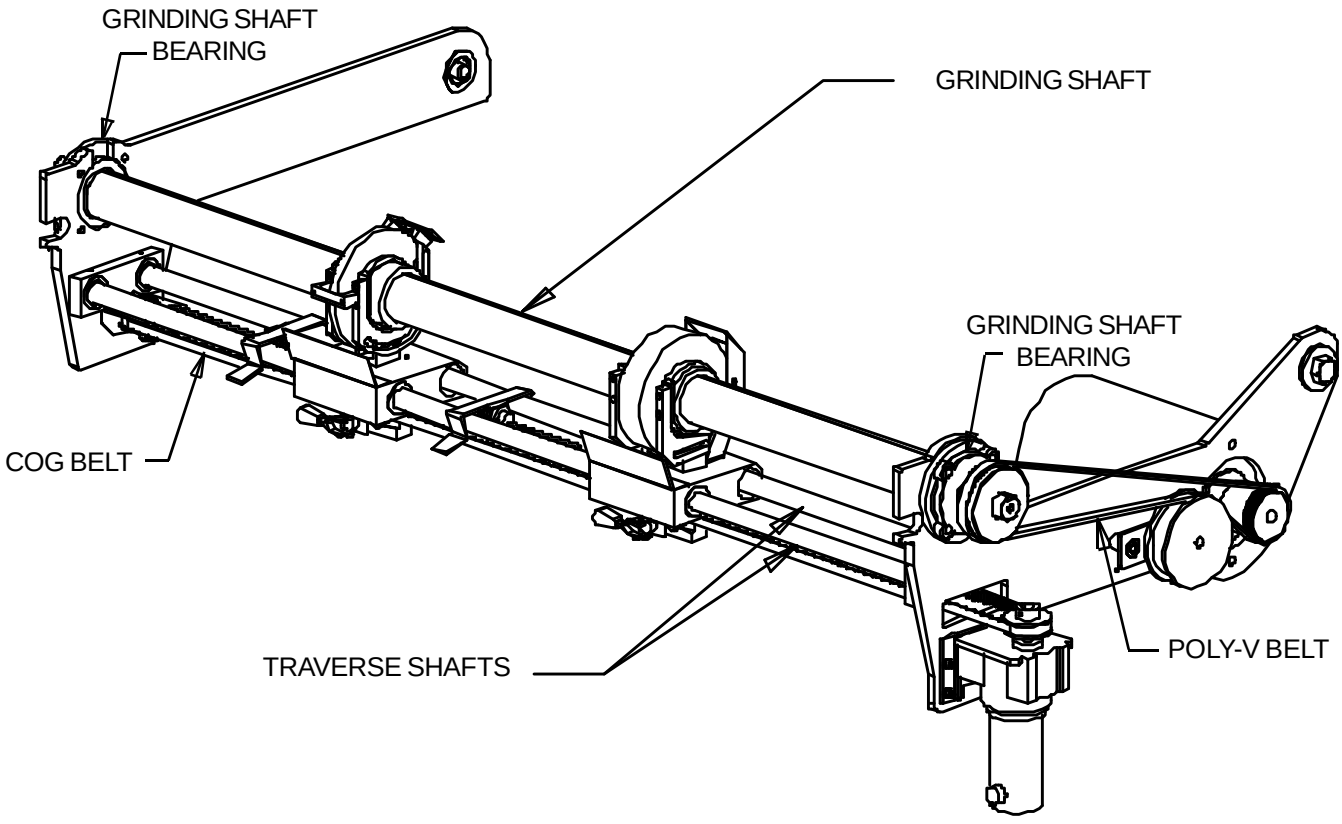


FIG. 9

MAINTENANCE

REPLACEMENT OF GRINDING WHEEL

To replace the wheel first remove the left side cover panel. Now, lower the left side of the grinding shaft and raise the right side. Next, loosen the two bolts that hold the bearing bracket on the relief hub so that that bearings pivot away from the wheel and hub (toward the front of the machine). See FIG 11. Press the index finger down and the wheel and hub assembly should move freely to the right.

Then remove the left side bearing. First loosen the setscrews on the bearing collar then remove the four screws that hold the bearing to the left arm.

Slide the grinding wheel hub assembly(s) off the shaft taking note of what side the nut is on. Use the spanner wrench to remove and replace the grinding wheel(s).

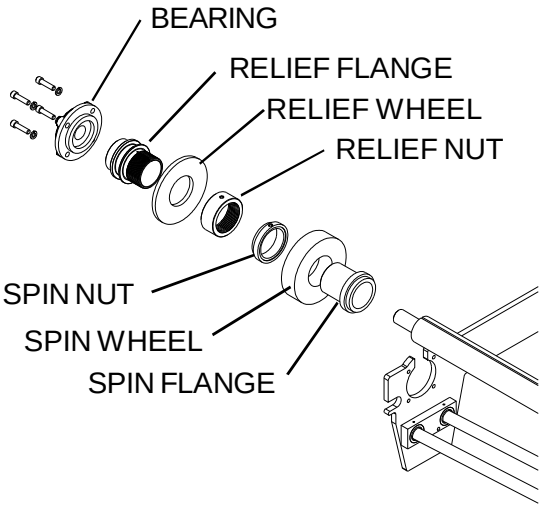
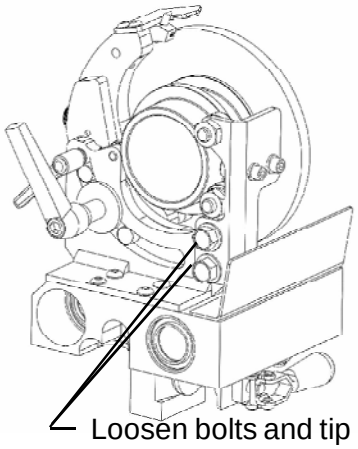


FIG. 10

NOTE: THE <u>RELIEF</u> HUB HAS A <u>LEFT HAND THREAD</u> FOR THE NUT. THE SPIN HUB HAS A RIGHT HAND THREAD.

Place the grinding wheel hub assembly(s) back on the grinding shaft. Verify that the spin hub is located between the spin drive yoke assembly and the relief hub is to the right of the relief drive assembly before lowering the grinding shaft.

MAKE SURE THE WHEEL(S) IS PLACED ON THE SHAFT WITH THE SAME ORIENTATION AS SHOWN. FAILURE TO INSTALL CORRECTLY WILL CAUSE THE WHEEL NUT TO LOOSEN. (THE NUT ON THE RELIEF HUB SHOULD BE TO THE RIGHT & THE NUT ON THE SPIN HUB SHOULD BE TO THE LEFT.)



Loosen bolts and tip bracket back. Press in the indexing finger and the wheel should slide freely to the right.

FIG. 11

Reinstall the bearing on the left side of the grinding shaft making sure to fit the pilot on the bearing into arm. Tighten the four mounting screws, and then tighten the setscrews to the shaft. Reinstall the left side cover panel. Move bearing support bracket back into place. See relief hub bearing adjustment to set the bracket correctly.

GRINDING MOTOR BELT REPLACEMENT/ ALIGNMENT

To replace or inspect the grinding motor belt, remove the right side cover panel. To remove the belt, pull down on the tensioner pulley.

For the belt to function properly the grinding shaft pulley and the grinding motor pulley must be in line with the tensioner pulley. To adjust the pulley position loosen the setscrews on the pulley. Locate the belt in the center of the idler pulley. Measure from the arm to the edge of the belt at the idler pulley. Adjust the two other pulley's until the same measurement is achieved and tighten the pulley setscrews.

Reinstall the right side cover panel, then run the grind motor to assure that the belt is not misaligned. The belt will walk off the pulley if the system is not aligned properly.

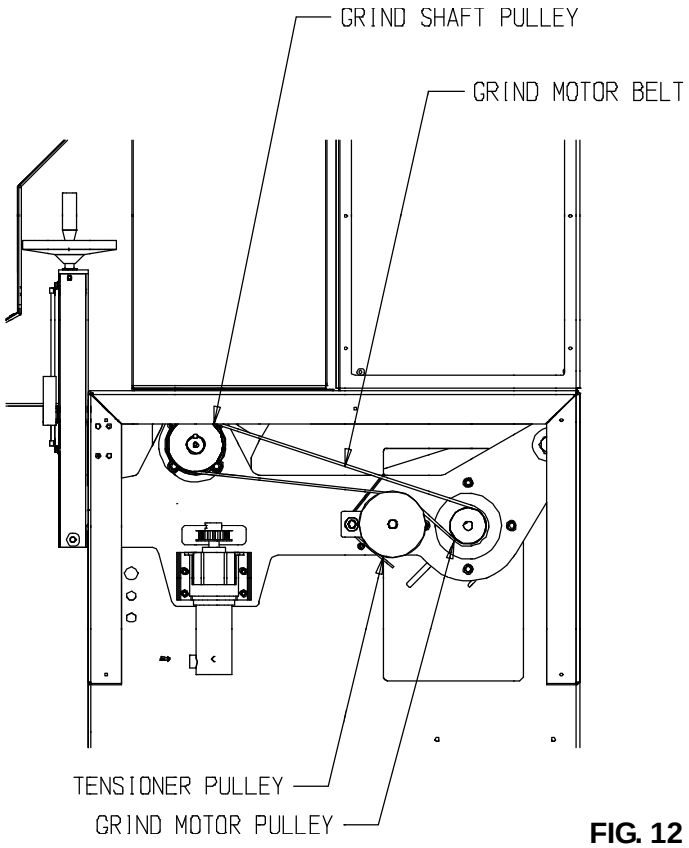


FIG. 12

TRAVERSE BELT REPLACEMENT

To replace the traverse belt, remove the left side cover panel, then loosen the nuts on the left side pulley that are used to tension the belt. Remove the right side cover panel. Loosen the screws holding the traverse motor and tilt the bottom of the motor out releasing any remaining tension on the belt. On the left side remove the nut from the bottom belt tensioning screw, this will allow the belt to be removed.

Place a new belt on the left pulley making sure it is seated properly in the cogged teeth and replace the locknut. Feed the new belt throught the slot on the right arm and place on motor pulley. Use the motor as a lever to apply tension to the new belt. Tighten motor screws and adjust the tension in the belt as specified in the BELT TENSION section. Adjust the height of the motor pulley if necessary so the belt is located in the center of the traverse belt clamp.

Reinstall the left side and right side cover panels, then test the traverse motor.

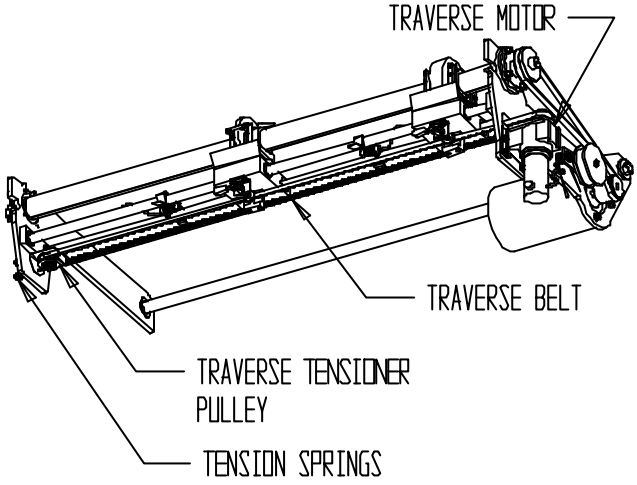


FIG. 13

TRAVERSE SHAFT/LINEAR BEARING REPLACEMENT

To replace the traverse shafts or the linear bearings in the Spin or Relief assembly, first remove the left side cover panel.

REMOVE GRINDING SHAFT:
Next you will need to remove the grinding shaft. First move the relief hub away from the relief hub assemlby (see Replacement of Griniding wheel section for details). Then remove the grinding motor belt and pulley (see Grinding Motor Belt Replacement). Now loosen the setscrews on the right side bearing to allow the grinding shaft to slide out of the bearing. Next remove the left side grinding shaft bearing. The grinding shaft is heavy so take appropriate measures when lifting or removing. To remove the grinding shaft lift up on the left end and slide the shaft out of the right side bearing. Set the shaft on the floor or bench out of the way.

THE GRINDING SHAFT WEIGHS 75LBS [34 Kg] USE APPROPRIATE LIFTING DEVICES TO AVOID INJURY.

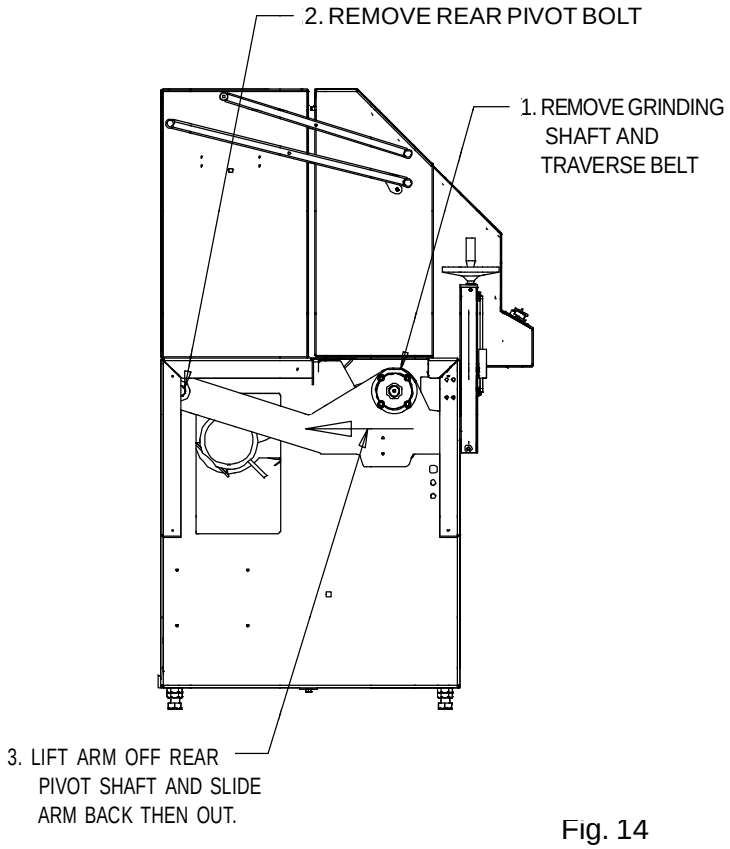

2. REMOVE REAR PIVOT BOLT
1. REMOVE GRINDING SHAFT AND TRAVERSE BELT
3. LIFT ARM OFF REAR PIVOT SHAFT AND SLIDE ARM BACK THEN OUT.

Fig. 14

REMOVE THE TRAVERSE BELT:
(See Traverse Belt Replacement section)

REMOVING THE TRAVERSE SHAFTS:
To remove the traverse shafts use the vertical adjusters to lower both grinding shaft support arms until they are in there lowest position. Now remove the left grindng shaft support arm. To remove the left arm, first remove the bolt at the rear of the machine. (It may be necessary to clamp onto the shaft that the bolt is screwed into so that it does not spin.) After removing the bolt, pull the arm off the rear shaft. Now move the arm toward the rear of the machine to disengage the front of the arm from the vertical adjuster. Next pull the arm away from the grinder and off the traverse shafts. (Note, the shafts may come out of the right side arm so support the shafts.)

Slide the Spin and Relief Grinding Head Assemblies off the traverse shafts.

Replace the shafts if necessary.

REPLACING THE TRAVERSE BEARING:
To replace the traverse bearings, press the bearings out of the bearing housing. Slide in the new bearings and secure in place with the seals. (Two bearings go in the front and 1 bearing the rear of the housing).

TO REASSEMBLE:
Clean the 2 spherical bearings in the right arm and place the traverse shaft into the bearings. (The shafts should slide into the bearings. There is very minimal clearance so the shafts need to be preciesly aligned for the shafts to slide into the bearings.) Next slide the grinding head assemblies (spin first then relief) onto the traverse shafts. Now, clean the bearing in the left arm. Then align the bearings in the left arm to the two traverse shafts. The shafts should slide into the bearings. Reinstall the left arm into the vertical adjuster housing and onto the rear support shaft. Reinstall the rear pivot bolt and tighten. Continue to install the traverse belt, grinding shaft, and grinding motor belt. See the sections on Traverse Belt Replacement, Replacement of Grinding Wheel, Grinding Motor Belt Replacement, Traverse Belt Tension, and Relief Grinding Head Bearing Adjustments for addtional details.

CLEANING AND MAINTENANCE GUIDELINES FOR POLYCARBONATE WINDOWS

Cleaning Instructions

DO NOT USE GASOLINE
Adherence to regular and proper cleaning procedures is recommended to preserve appearance and performance.

Washing to Minimize Scratching

Wash polycarbonate windows with a mild dish washing liquid detergent and lukewarm water, using a clean soft sponge or a soft cloth. Rinse well with clean water. Dry thoroughly with a moist cellulose sponge to prevent water spots. Do not scrub or use brushes on these windows. Also, do not use butyl cellosolve in direct sunlight.

Fresh paint splashes and grease can be removed easily before drying by rubbing lightly with a good grade of VM&P naphtha or isopropyl alcohol. Afterward, a warm final wash should be made, using a mild dish washing liquid detergent solution and ending with a thorough rinsing with clean water.

Minimizing Hairline Scratches

Scratches and minor abrasions can be minimized by using a mild automobile polish. Three such products that tend to polish and fill scratches are Johnson paste Wax, Novus Plastic Polish #1 and #2, and Mirror Glaze plastic polish (M.G. M10). It is suggested that a test be made on a corner of the polycarbonate window with the product selected following the polish manufacturer's instructions.

Some Important "DON'TS"

- **DO NOT** use abrasive or highly alkaline cleaners on the polycarbonate windows.
- **Never** scrape polycarbonate windows with squeegees, razor blades or other sharp instruments.
- Benzene, gasoline, acetone or carbon tetrachloride should **NEVER** be used on polycarbonate windows.
- **DO NOT** clean polycarbonate windows in hot sun or at elevated temperatures.

Graffiti Removal

- Butyl cellosolve, (for removal of paints, marking pen inks, lipstick, etc.)
- The use of masking tape, adhesive tape or lint removal tools works well for lifting off old weathered paints.
- To remove labels, stickers, etc., the use of kerosene, VM&P naphtha or petroleum spirits is generally effective. When the solvent will not penetrate stickier material, apply heat (hair dryer) to soften the adhesive and promote removal.
  GASOLINE SHOULD NOT BE USED!

MAINTENANCE (Continued)

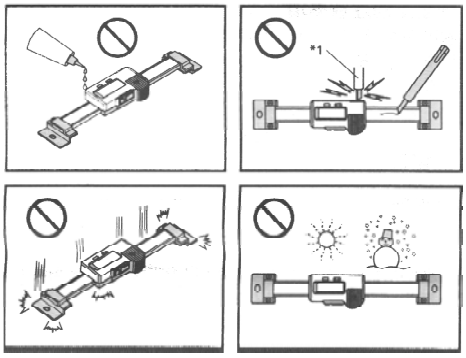
DIGITAL GAGE

Important

Do not mark the scale unit with an electric engraver or scratch the scale.

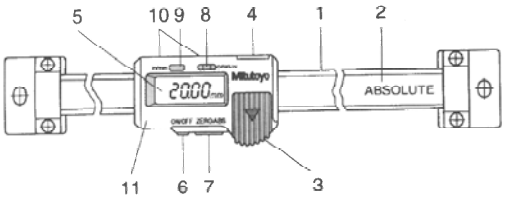
Always use an SR44 battery (silver oxide cell)

If the scale will not be used for more than three months, remove the battery and store it properly. Otherwise, leakage, if any, from the battery may damage the unit.



Description of Parts

1. Beam
2. Main Scale
3. Battery compartment
4. Outp Connection
5. Display
6. ON/OFF Power
7. ZERO/ABS switch
8. Origin Switch
9. Inch/mm Switch
10. Tapped hole
11. Slider

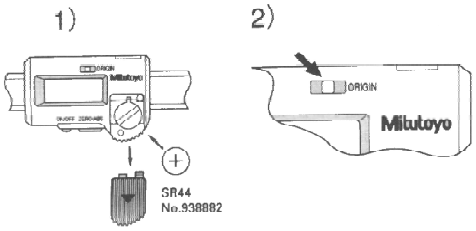


Battery Installation and Origin Setting

Set the origin of the scale after installing the battery. Otherwise, the error sign("E" at the least significant digit) may appear, resulting in incorrect measurements.

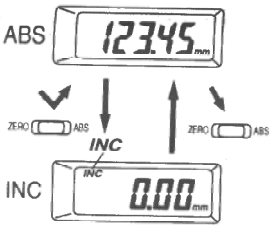
1) To install the battery, remove the compartment lid and install the SR44 battery with its positive side facing up. After the battery is installed, set the origin.

2) To set the origin, move the slider to an area you wish to set as your origin. Turn the power on. Hold the ORIGIN switch down for more than one second. The "0.00" display appears, indication Origin setting is complete. The origin will be retained even if the power is turned off.



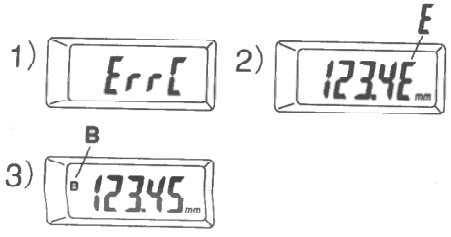
Incremental (INC) & Absolute (ABS) mode

The LCD will dispay measurements from the origin when turned on (ABS mode). To set the origin see above. The display can be set to zero at any desired position by pressing the ZERO/ABS switch. INC indicator will apper in the display (INC mode), permitting measurements from this zero point. To return to the ABS mode hold the ZERO/ABS button form more than 2 seconds.



Error Symptoms & Remedies

- ◆◆ **ERRC and display flickering:** Occurs when the scale surface is stained. Clean the scale surface and coat a thin film of low viscosity oil to keep out moisture.
- ◆◆ **E in the least significant digit:** This occurs when the slider is moved too quickly, but it does not affect the measurement. If it stays on when the slider stops, the scale surface is probably stained. If this is the case, take remedies as for ERRC.
- ◆◆ **B indication:** Battery voltage is low. Replace the battery as soon as possible.



Cleaning

Clean gage with CRC 3-36 Cleaning and Lubrication OIl. Wipe off excess after cleaning. If CRC 3-36 is not available, use Denatured Alcohol to clean, then apply light oil and wipe off excess.

ADJUSTMENTS

PROXIMITY SWITCH

For the proximity switch to perform properly and reverse the direction of the grinding head assembly, the sensor end of the proximity switch must face toward the head assembly that is in use and must be mounted such that it is located past the edge of the prox holder.

NOTE: The light on the proximity switch activates when metal is approximately 3/16" [4.6 mm] from the front of the proximity switch.

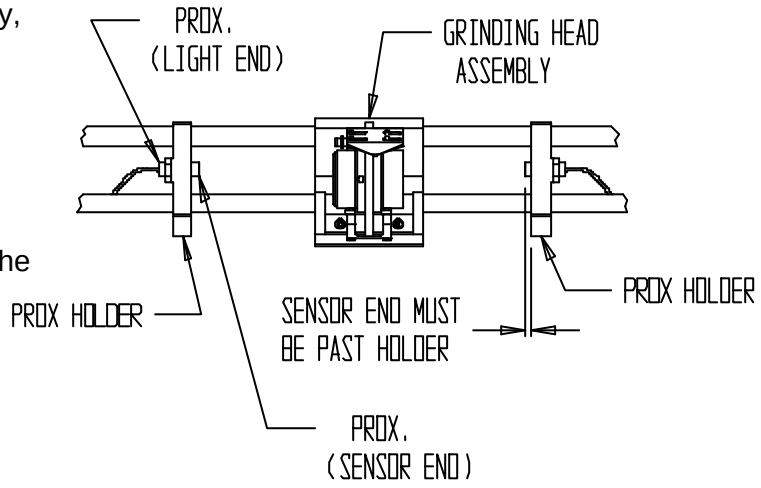


FIG. 15

VERTICAL INFEED SHAFT DRAG

If the grinding shaft tends to walk during grinding, the drag on the vertical adjusters needs to be increased. To increase the drag in the vertical adjustment shafts, tighten the setscrew on the back of the vertical adjustment housing.

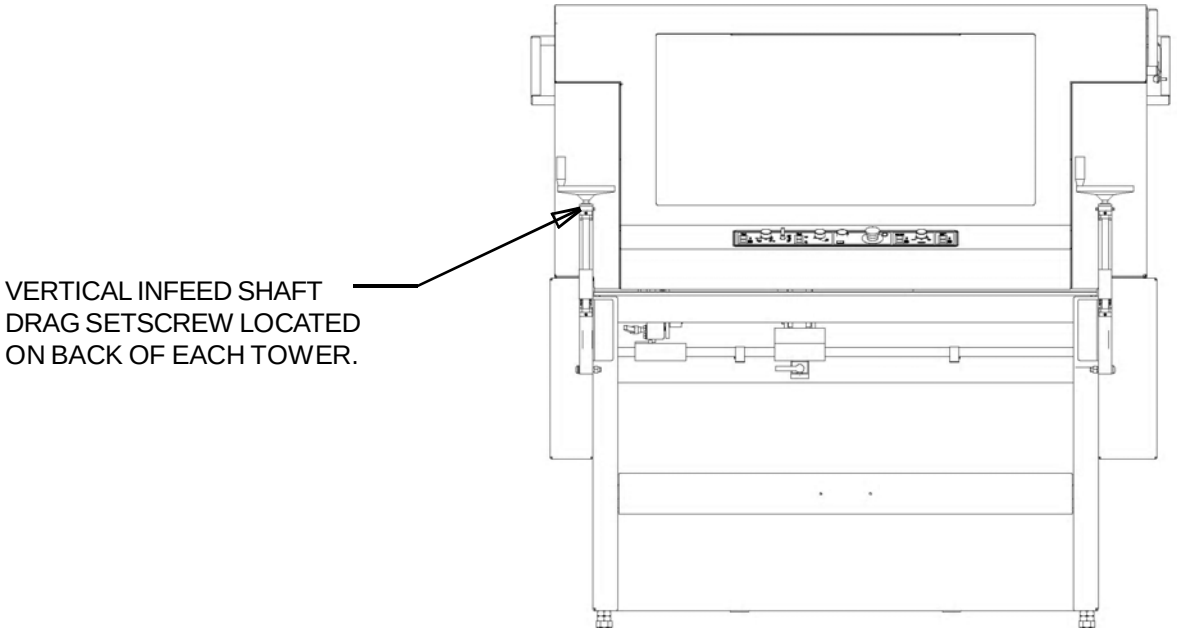


FIG. 16

TRAVERSE BELT TENSION

To adjust the tension on the traverse belt, tighten the screws and nuts located to the left side of the traverse belt behind the left side cover panel to a minimum of 1.75" [44 mm]. The traverse belt should be level when adjusting the belt tension.

DO NOT OVERTIGHTEN. OVERTIGHTENING COULD DAMAGE THE BELT OR TRAVERSE DRIVE SYSTEM.

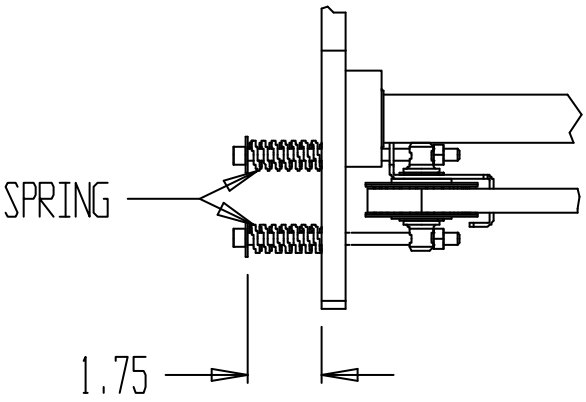


FIG. 17

TRAVERSE CLAMP FORCE

If the traverse clamp is slipping during regular operation it may become necessary to adjust the clamp tip location. To adjust the clamp tip, loosen the jam nut and rotate the clamp tip. The clamp tip should be adjusted to the dimension specified in FIG 18. To measure, move the traverse belt out of the way. Measure the clamped distance from the clamp tip to the clamping block (shoe). To secure the new position, jam the nut against the clamp being careful not to move the clamp tip.

If there is not enough adjustment in the clamp tip, the bracket that supports the clamp can also be adjusted. The bracket is slotted, to adjust loosen the two screws that are hold the bracket in place and slide the bracket forward or back. Then retighten the screws, make sure they are tight or the bracket will move during clamping. Check the tip distance and make any necessary adjustments.

THE TIP HAS BEEN FACTORY SET SO THAT IT WILL SLIP IF THE GRINDING HEAD ASSEMBLY COMES IN CONTACT WITH SOMETHING. CAUTION SHOULD BE USED AS ADJUSTING THE TIP WILL AFFECT THE SLIP LOAD AND COULD DAMAGE THE CLAMP TIP, BELT OR TRAVERSE DRIVE SYSTEM.

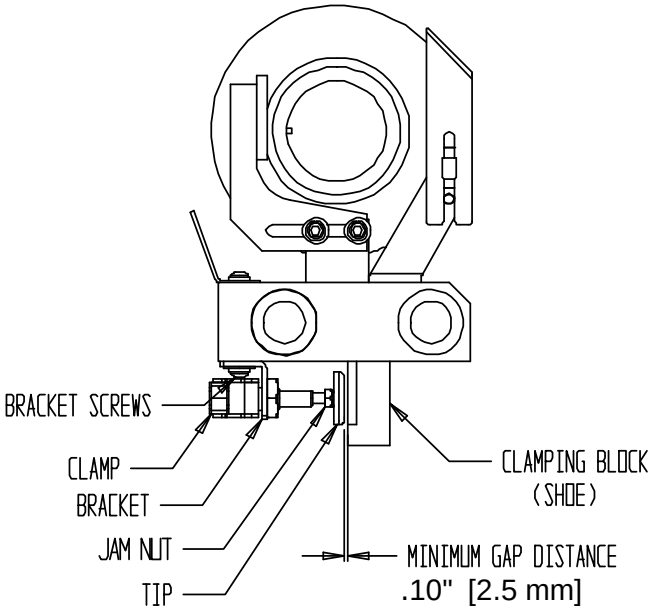


FIG. 18

SPIN GRINDING HEAD WEAR PADS

The bronze wear pads used to move the spin wheel will wear and may need to be adjusted or replaced.

When pad wears to within a 1/16" [1.5 mm] of the screws, the pad will need to be flipped or replaced. The holes in the pads are offset slightly, this allows the pads to be flipped if neccessary to accomplish the best fit. When installing new pads, flip or rotate the pads until Gap 2 is as small as possible without the pads pinching the wheel.

On the spin grinding head assembly, the distance from the pad to the wheel can be adjusted in and out by loosening the screws located on the sides of the yokes. Gap 1 should be adjusted to about 1/16" [1.5 mm]. See FIG. 19

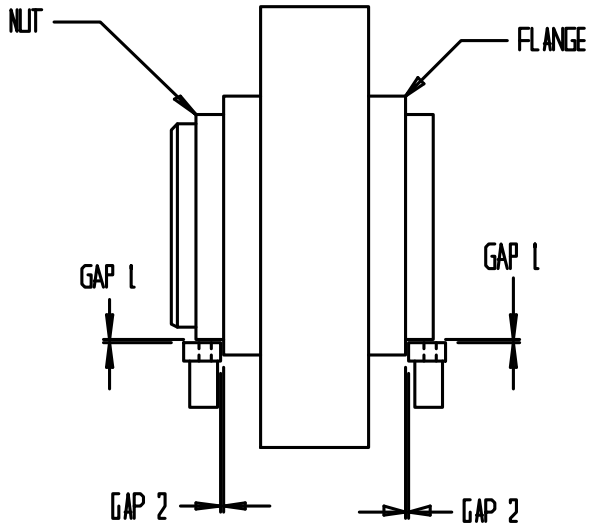


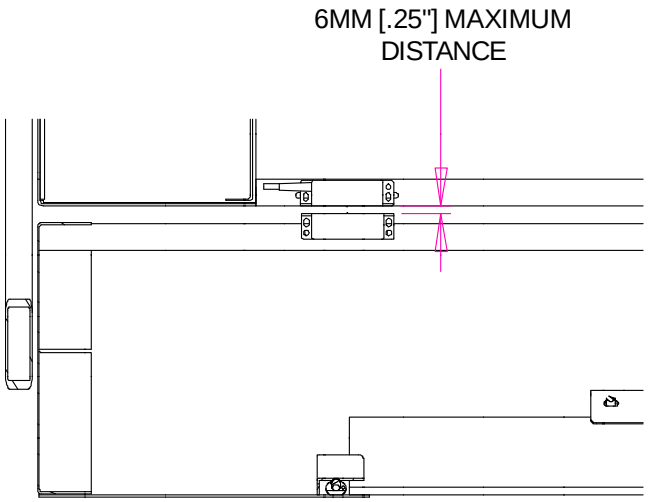
FIG. 19

SAFETY SWITCH ALIGNMENT/REPLACEMENT

The safety switch located on the front and rear guard door must line up properly or the grinder will not function.

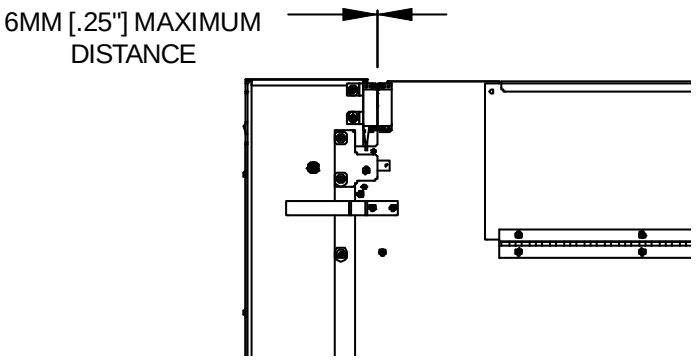
The front and rear door switches must be within 6mm [.25"] and the targets on the switches must line up in order for the switch to function properly. See FIG. 20 and 21.

The switches are attached to the guarding using a "Torx" style tamper resistant screws. A tool for this type of screw is required to make this adjustment.



FRONT DOOR SWITCH
(INSIDE UPPER RIGHT SIDE)

FIG. 20



REAR DOOR SIWTCH

FIG. 21

ADJUSTMENTS (Continued)

RELIEF GRINDING HEAD BEARING ADJUSTMENTS

It may be necessary to adjust the guide bearings on the relief head. To adjust the position of the support bearings, POSITION THE GRINDING HEAD AT THE FAR LEFT POSITION, loosen the two positioning bolts located on the side of the support assembly. Press on the support assembly until the top support bearing is touching the grinding wheel hub. Hold the support in place with the bearing touching the hub and tighten the two positioning bolts. Check to see that the bearing is touching or has minimal clearance to the hub through the full range of left to right travel.

NOTE: EXCESSIVE PRELOAD OF THE BEARING ASSEMBLIES ON THE HUB CAN CAUSE THE BEARINGS TO WEAR QUICKER AND COULD CAUSE THEM TO FAIL PREMATURELY.

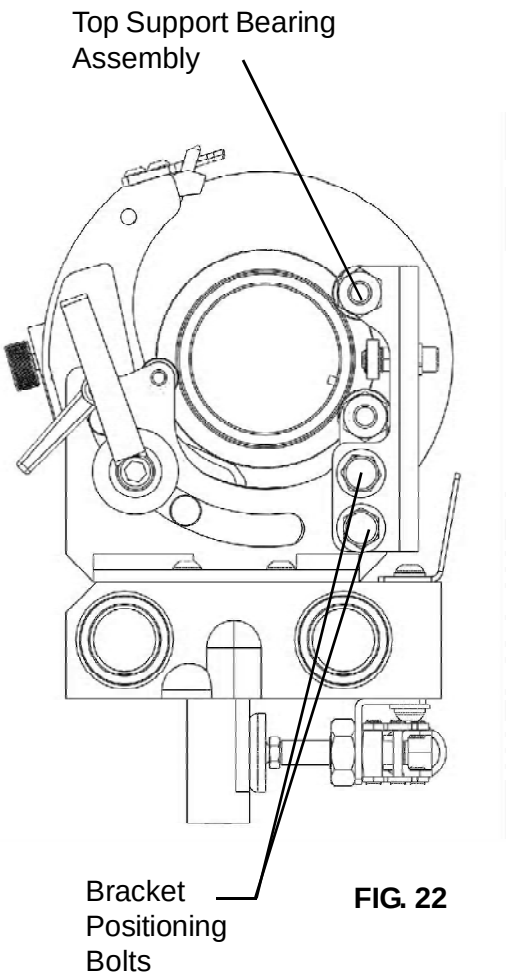


FIG. 22

CONTROL BOARD POTENTIOMETER ADJUSTMENTS

POTENTIOMETER ADJUSTMENTS TRAVERSE DRIVE CONTROL (TDC)

Min. Speed--Factory set at full (CCW) 8:30. Do not change this setting.

(Right Traverse) Forward Torque--Factory set at full (CW) 4:30. Do not change this setting.

(Left Traverse) Reverse Torque--Factory set at full (CW) 4:30. Do not change this setting.

IR COMP--Factory set to 9:00. IR COMP is current (I) resistance (R) compensation (COMP). IR COMP adjusts the output voltage of the drive which balances load to motor RPM. Regulation of a traverse motor may be improved by slight adjustment of the IR COMP pot clockwise from its factory-set position. Overcompensation causes the motor to oscillate or to increase speed when fully loaded. If you reach such a point, turn the IR COMP pot counterclockwise until the symptoms disappear.

Max. Speed--Set at 3:30 for maximum voltage of 90 Volts DC to the traverse motor. When voltage is above 90 volts DC, the traverse motor will start to pulsate and not run smoothly.

(Right Traverse) Forward Acceleration--Factory set at full (CCW) 8:30. Do not change this setting.

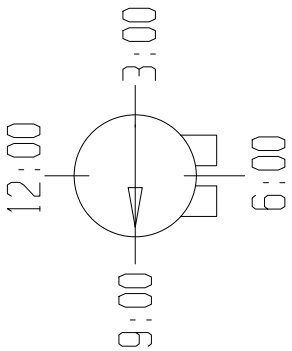
(Left Traverse) Reverse Acceleration--Factory set at full (CCW) 8:30. Do not change this setting.

(DB) Dead Band is the potentiometer setting for the 50 or 60 Hz cycle control. Factory set to 9:00, works for both 50 and 60 Hz. Do not change this setting.

Calibrating the **DWELL TIME** rotary DIP switch adjusts the amount of time the process remains in the stop position after a limit switch is actuated. The **DWELL TIME** range is adjustable from 0-4 seconds. A DIP switch setting of 0 sets the **DWELL TIME** to 0 seconds, while a setting of 9 sets the **DWELL TIME** to 4.5 seconds. Dwell time is preset to #4 setting for a 2 second dwell time when reversing at each end of stroke. A setting of 6, sets the dwell time at 3 seconds, etc.

Diagnostic LED's indicate the function that is currently being performed:

POWER indicates that AC power is being applied to the control.
FORWARD indicates that the process is running in the forward direction (traversing left).
REVERSE indicates that the process is running in the reverse direction (traversing right).
PROX 1 FWD LIMIT lights when the forward limit switch is actuated (left prox.).
PROX 2 REV LIMIT lights when the reverse limit switch is actuated (right prox.).
DWELL lights when the process remains stopped after a proximity switch is actuated.



Potentiometer Clock Orientation

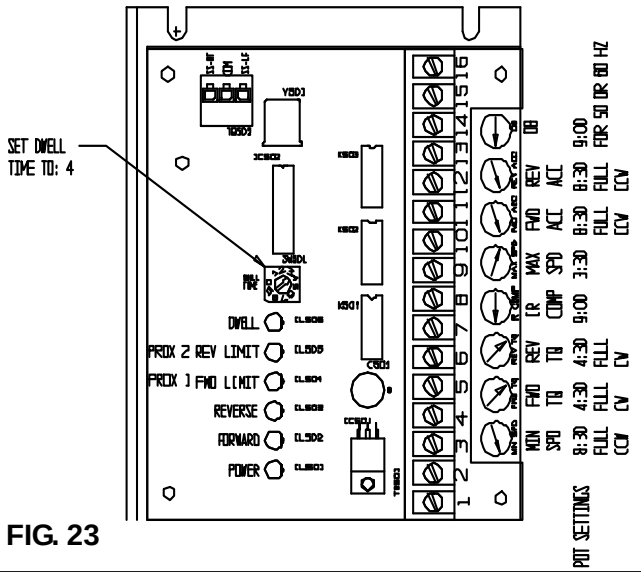


FIG. 23

CONTROL BOARD POTENTIOMETER ADJUSTMENTS (Continued)

SPIN DRIVE CONTROL BOARD (SDC)

The Spin Drive Control Board has four potentiometers, two switches and one dial as shown on FIG. 24. These potentiometers,swtiches and dial have been set at the factory to the positions shown on FIG. 24.

In the Relief Grinding Mode--

The Torque Shut Off mode selector allows you to turn on or off the Torque Shut Off feature. When switch 1 is set to ON, the board will decrease the spin motor torque once the shut time is achieved after leaving the right proximity sensor. The amount of time it takes before the torque is decreased is set with the Torque Shut Off Delay dial. The spin motor toque will be increased to the higher value once the right proximity switch is activated again. If the Torque Shut Off selector is in the OFF position the torque will remain constant during relief grinding. This should be set to OFF.

Torque Shut Off Delay dail is used to set the duration of time before the torque is decreased after leaving the right proximity sensor during relief grinding. If the dial is turned clockwise (higher number) the higher torque value will stay on for a longer period of time.

The Relief Speed (RSP) and the Relief Torque Pot (RTP) interact with each other. The (RSP) is located on the spin board as a remote speed preset at 12:00 (20 Volts DC). See FIG. 24. The (RTP) is located on the control panel and is for relief torque adjustment.

Relief Speed Pot (SPEED) when rotated clockwise will increase spin drive speed (the speed at which the reel indexes to the next blade). This speed should never be above the 3:00 setting.

Relief Torque Pot (TORQ) is used to vary the reel to finger holding torque for relief grinding. The recommended starting point is 30 in/lbs of torque setting. Never adjust the (RTP) potentiometer dial past the red line marking. Setting the reel to finger torque to high could cause the spin motor system to not operate smoothly.

Relief Idle Torque Pot (ITP) is used to vary the reel to finger holding torque once the shut time is achieved after leaving the right proximity sensor if the Torque Shut Off Selector is set to on.

In the Spin Grinding Mode--

The Spin Torque Potentiometer (STP) and the Spin Speed Pot (SSP) interact with each other. The (STP) is located on the spin board as remote torque preset at 2:00 for torque setting. See FIG. 24. The (SSP) is located on the control panel and is for spin speed adjustment.

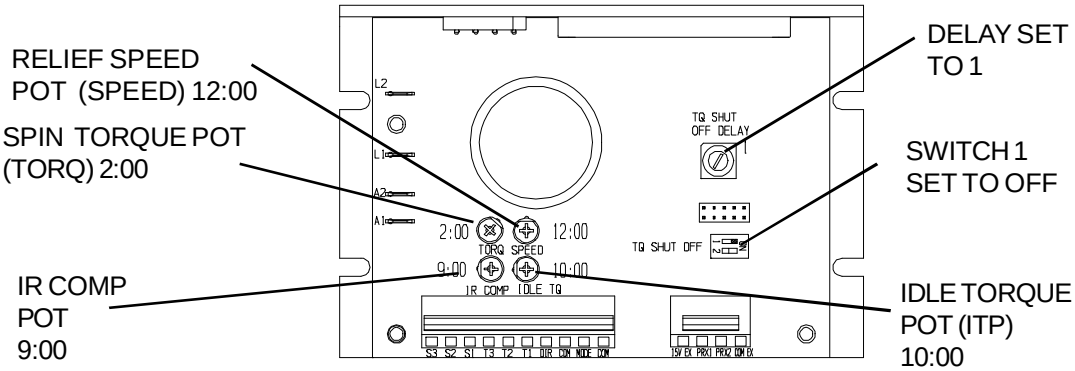
Spin Torque Pot (STP) controls maximum torque allowable in the spin grinding cycle only. This should never be adjusted past the 3:00 position. If the reel does not turn check that the reel is free turning by hand spinning with the power off and the spin drive disconnected.

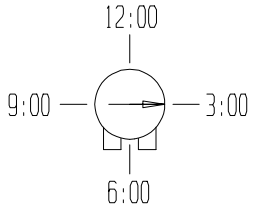
The Spin speed Pot (SSP) controls reel spin speed, adjust as required. This controls the spin drive speed for spinning the reel.

IR COMP Pot--

The IR Compensation is factory set at 9:00.

Regulation of the spin or relief grind spin motor may be improved by a slight adjustment of the IR COMP pot clockwise from its factory-set position. Overcompensation causes the motor to oscillate or to increase speed when fully loaded. If you reach such a point, turn the IR COMP pot counterclockwise until symptoms just disappear.





Potentiometer Clock Orientation

FIG. 24

ELECTRICAL TROUBLESHOOTING

SKILL AND TRAINING REQUIRED FOR ELECTRICAL SERVICING

This Electrical Troubleshooting section is designed for technicians who have the necessary electrical knowledge and skills to reliably test and repair the RG5500 electrical system. For those without that background, service can be arranged through your local dealer.

This section presumes that you are already familiar with the normal operation of the Grinder. If not, you should read the Operator's Manual, or do the servicing in conjunction with someone who is familiar with its operation.

Persons without the necessary knowledge and skills should not remove the control panel cover or attempt any internal troubleshooting, adjustments, or parts replacement.

If you have any question not answered in this manual, please call your local dealer.

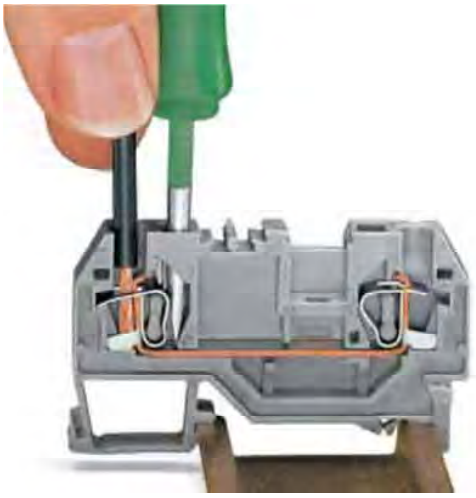
WIRE LABELS

All wires on the RG5500 have a wire label at each end for troubleshooting. The wire label has a code which tells you wiring information. The wire label has a seven position code. The first two or three digits are the wire number: 01-199. The next three numbers or letters are the code for the component to which the wire attaches. Example: TDC for Traverse Drive Control. The last two numbers or letters are the number of the terminal on the component to which the wire attaches.

TERMINAL BLOCKS:

To insert or remove a wire from the terminal block insert a small screw driver into the square hole. Then insert or remove wire from the round hole. Remove screwdriver to lock the wire in place.

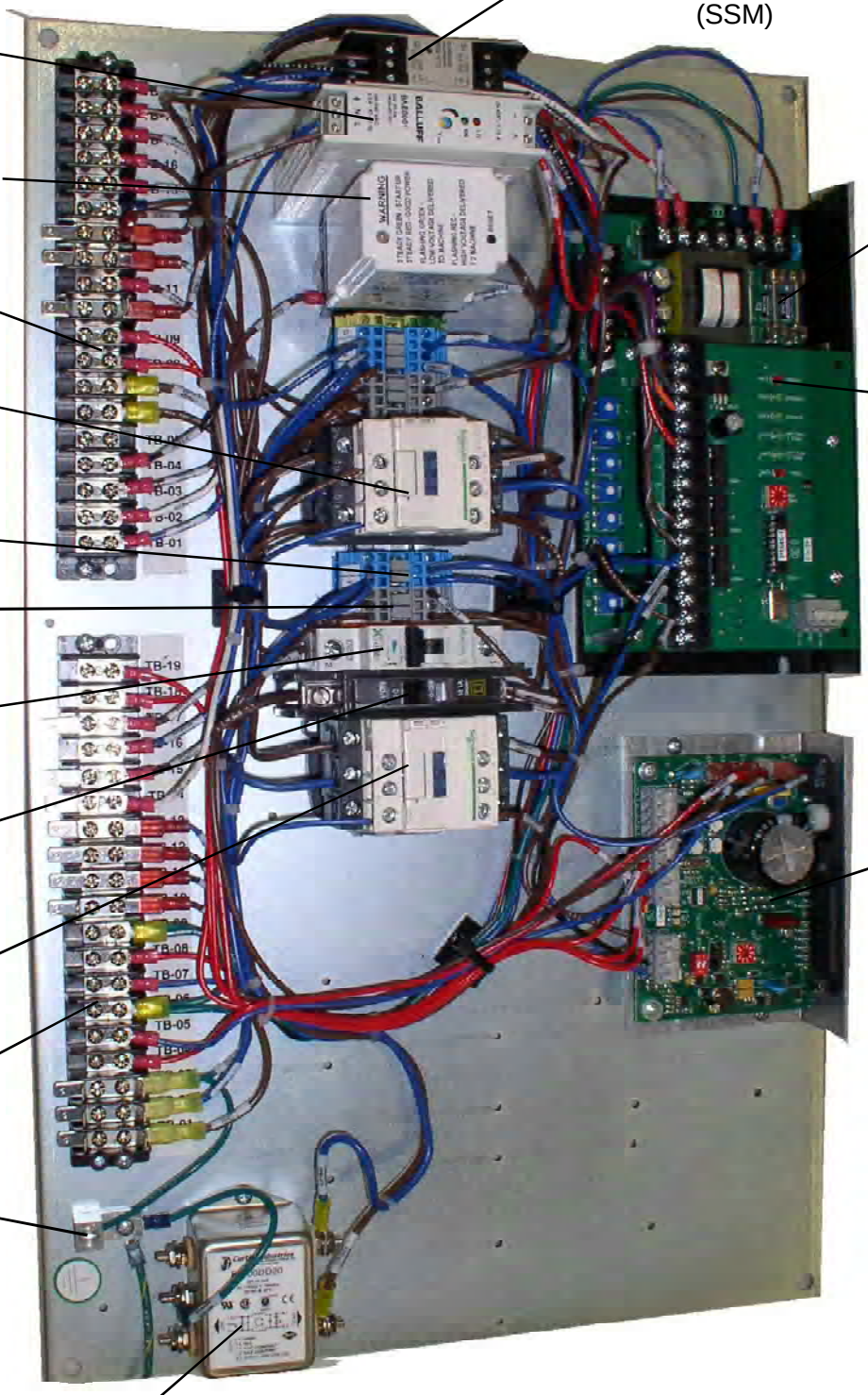
Note the square hole can also be used when checking for voltages. The probe tip of the multimeter can be inserted into the square hole to take readings.



TROUBLESHOOTING INDEX

AC Main Power Controls ..... Page 28-30
Grinding Motor Controls ..... Page 31
Spin Drive Controls ..... Page 32-36
Traverse Drive Controls ..... Page 37-41
Mechanical Troublshooting ..... Page 42-43

CONTROL PANEL
located on the right side of the machine.


24 VDC Power Supply (PWR)
Door Safety Switch Monitor (SSM)
Low Voltage Relay (LVR)
Traverse Drive Control Board FUSES 3A Slow Blow
Terminal Strip #2 (TB2)
Magnetic Contactor (MAG)
Traverse Drive Control Board (TDC)
Blue Terminal Blocks (TBB)
Grey Terminal Blocks (TBG)
Secondary Circuit Breaker (SCB)
Main Circuit Breaker (MCB)
Spin Drive Control Board (SDC)
Grinding Motor Relay (REL)
Termial Strip #1 (TB1)
Main Ground Lug
AC Filter (FTR)

ELECTRICAL TROUBLESHOOTING (Continued)

PROBLEM--AC Main Power Controls: no electrical power to control panel.

Verify all wires shown on the wiring diagram are correct and pull on wire terminals with approximately 3 lbs force to verify there are no loose terminal connections and/or no loose crimps between the wire and the terminal. If problem persists, test as listed below.

Possible Cause	Checkout Procedure	
Emergency Stop Botton(ESS) is Depressed	**A.** Pull Up on ESS Button	Machine works Yes--end troubleshooting No--go to Step **B.** next
You must push the System Start Switch (SSS) to get power to control Panel	**B.** Listen for the Magnetic Starter (MAG) contacts to pull in with a clunk	Machine works Yes--end troubleshooting No--go to step **C.** next.
Main Power Cord is not plugged in	**C.** Plug in main power cord	Machine works Yes--end troubleshooting No--go to step **D.** next.
Guard doors must be closed and ALL Switches **MUST** be turned **OFF** for contactor to pull in.	**D.** Close guard doors and turn off all switches.	Machine works Yes--end troubleshooting No--go to step **E.** next.
Main 20 amp outlet circuit breaker has tripped	**E.** Check circuit breaker in your building and reset if necessary. (Check wall outlet with a light to make sure it works)	Machine works Yes--end troubleshooting No--but light works in outlet--go to Step **F.** next. No--and light does not work in outlet. You must solve your power delivery problem independent of machine.
No 120 Volts AC power to Filter (FTR)	**F.** Check for 120V at Cord into FTR (Power Cord #32) [Blue wire to Brown wire]	FTR "Line" Terminals for 120 Volts AC Yes--Go to Step **G**. next. No--Replace Cord - (5NT6059054)
No 120 Volts AC power out of Filter	**G.** Check for 120V out of FTR [Blue wire to Brown wire]	FTR "Load" Terminals for 120 Volts AC Yes--Go to Step **H**. next. No--Replace Filter
No 120 Volts AC power to Main Circuit Breaker (MCB)	**H.** Check for 120V to MCB	Measure 120 VAC from MCB Terminal (01MCB--) to Terminal Block 4 (02TBW-4) blue (use square hole) Yes--Go to Step **I**. next. No--Check wires & replace if needed.
No 120 Volts AC power from Main Circuit Breaker (MCB)	**I.** Check for 120V to MCB	Measure 120 VAC from MCB Terminal (03MCB--) to Terminal Block 4 blue (02TBW-4) Yes--Go to Step **J**. next. No--Flip Switch on MCB to "ON" - Machine works-- end trouble shooting Machine does not work-- check MCB

ELECTRICAL TROUBLESHOOTING (Continued)

Possible Causes	***Checkout Procedure***	
No 120 Volts AC power to Secondary Circuit Breaker (SCB) 6 Amp.	**J.** Check for 120V to SCB	Measure 120 VAC from SCB (03SCB--) to nuetral (blue) terminal out of FTR (02FTRBU) Yes--Go to Step **K.** next. No--Check wires & replace if needed.
No 120 Volts AC power from Secondary Circuit Breaker (SCB) 6 Amp.	**K.** Check for 120V from SCB	Measure 120 VAC fromSCB (67SCB--) to nuetral (blue) terminal out of FTR (02FTRBU) Yes-- Go to Step **L.** next. No--Flip Switch on SCB to "ON"-Machine works--end of troubleshooting. Machine does not work--check SCB
120 Volts AC power not delivered to Terminal Strip	**L.** Check for 120 Volts AC at terminal strip.	Measure 120 VAC from Terminal "11" on Terminal Strip 2 "07TB2-11" to nuetral (blue) terminal out of FTR (02FTRBU) Yes--Go to Step **M**. next. No--Check continuity of wires #07 and #03, verify terminal block Jumper are installed on Grey Blocks 1-3.
Grinding Motor Switch (GMS) not working	**M.** Check for 120 Volts AC at GMS Terminals 1 (switch must be in the off position)	Measure 120 VAC from GMS Terminal 1 to nuetral (blue) terminal out of FTR (02FTRBU) Yes--Go to Step **N**. next. No--Flip Switch and check again-Works--Switch is upside down. Still no 120VAC-- Check wiring/Verify Continuity/ Replace Switch
Spin Motor Switch (SMS) not working	**N.** Check for 120 Volts AC at SMS Terminals 1 (switch must be in the off position)	Measure 120 volts AC from SMS Terminal 1 to nuetral (blue) terminal out of FTR (02FTRBU) Yes--Go to Step **O**. next. No--Flip Switch and check again-Works--Switch is upside down. Still no 120VAC -- Check Wiring/ Verify Continuity/ Replace Switch
Bad Emergency Stop Switch (ESS)	**O.** Check voltage after the (ESS) MAKE SURE SWITCH IS PULLED UP!	Measure 120 Volts AC from (ESS) terminal 2 to nuetral (blue) terminal out of FTR (02FTRBU) Yes--Go to Step **P.** next No--Check wire for continuity, then verify switch continuity. If bad replace ESS contactor (NC)
Bad System Start Switch (SSS)	**P.** Hold in SSS and Check voltage after the (SSS)	Measure 120 Volts AC from (SSS) term 3 to nuetral (blue) terminal out of FTR (02FTRBU) Yes--Go to Step **Q.** next No--Check wire for continuity, then verify switch continuity. If bad replace SSS contactor (NO)
Low Voltage Relay (REL) not operating	**Q.** Hold in SSS and Check voltage at LVR. LVR must be installed in 8-pin socket.	Measure 120 Volts AC from LVR term 8 to nuetral (blue) terminal out of FTR (02FTRBU) Yes--Go to Step **R.** next No--Check for 120 Volts AC from LVR term 6 to term 7. Yes--Verify Continuity from term 1 to term 8 on LVR. Replace LVR if bad. No--Verify Continuity of LVR Wires.
Bad Main Contactor (MAG)	**R.** Hold in SSS and Check voltage at MAG A1 & A2.	Measure 120 Volts AC from MAG Term A1 to Term A2 Yes--MAG Should pull in with clunck, if not replace MAG. No--Verify Continuity of Wires to MAG A1 and A2

ELECTRICAL TROUBLESHOOTING (Continued)

***PROBLEM*--Machine Shuts off when you turn on Grind motor switch or Spin Motor Switch.**

Possible Cause	***Checkout Procedure***	
Guard Doors are Open	**A.** Close the front doors and rear door	Machine works Yes--end troubleshooting No--go to Step **B.** next
Door Safety Switches are not working properly	**B.** Check alignment of door safety switches on front doors and rear door	See Alignment section of this Manual. Machine works Yes--end troubleshooting No--go to Step **C.** next
No 24 Volts DC to Safety Monitor (SSM)	**C.** Check SSM for 24 Volts DC. (Turn switches off and press start switch to pull in MAG before testing voltages)	Measure 24 volts DC from SSM Terminal A1+ to Terminal A2- Yes--Go to Step **E**. next. No--Go to Step **D**. next.
No Power into 24 Volt DC Power Supply (PWR)	**D.** Check PWR for 120 Volts AC. (Turn switches off and press start switch to pull in MAG before testing voltages)	Measure 120 volts AC from PWR Terminal L to Terminal N Yes--Verify 24 VDC out of PWR (V+ to V-). Replace if no voltage out; or check wiring & verify continuity to SSM if there is 24 VDC. No--Verify wiring and continuity from PWR to terminal blocks.
No Power Out to Door Switches	**E.** Verify 24 Volts DC out to door switches.	Measure approximately 24 volts DC from Terminal Strip 1 Terminal 17 to Terminal Strip 2 Terminal 3 Yes--Go to Step **F**. next. No--Verify continuity of wires to Terminal strip, Replace SSM if wires check OK.
Rear Door Switch is Bad	**F.** With rear door closed verify 24Volts DC back from rear door switch.	Measure approximately 24 volts DC from Terminal Strip 2 Terminal 3 to Terminal Strip 1 Terminals 14 and 15. Yes--Go to Step **G**. next. No--Check Alignment of Rear door switch. If no voltage to Term14 or 15 then replace rear switch.
Front Door Switch is Bad	**G.** With front doors closed verify 24Volts DC back from front door switch.	Measure approximately 24 volts DC from Terminal Strip 1 Terminal 17 to Terminal Strip 2 Terminals 2 and 4. Yes--Replace SSM No--Check alignment of front door switch. If no voltage to Term2 or 4 after alignment, then replace front switch.

***PROBLEM*--(MAG) turns on only with System Start Switch held in.**

Possible Cause	***Checkout Procedure***	
(MAG) holding contact has failed	**A.** Check wiring to and from MAG holding contact in. Verify the magnetic starter holding contact is working.	Measure 120 Volts AC at MAG term L3 to Term Block 4(Blue) after SSS is pushed. Yes--Verify Wiring to LVR No--Measure 120 Volts AC at MAG term T3 to Term Block 4(Blue) after SSS is pushed. If 120 Volts AC Replace MAG. If no 120 Volts AC verify wiring to T3.

ELECTRICAL TROUBLESHOOTING (Continued)

PROBLEM-- Grinding motor not working.

Assuming (SSS) System Start Switch is on with 120 volts AC to control panel and all other functions are working.

Verify all wires shown on the wiring diagram are correct and pull on wire terminals with approximately 3lbs force to verify there are no loose terminal connections and/or no loose crimps between the wire and the terminal. If problem persists, test as listed below.

Possible Cause	Checkout Procedure	
Grinding Motor Switch (GMS) is not on	**A.** Turn switch on	Grinding Motor works Yes--end troubleshooting No--go to Step **B.** next
Guard doors are not closed	**B.** Close front and rear guard doors	Grinding Motor works Yes--end troubleshooting No--go to Step **C.** next
15 Amp Circuit Breaker (CB) is tripped	**C.** Check 15 amp CB on the side of the grinder above the control cover. Press in if tripped.	Grinding Motor works Yes--end troubleshooting No--go to Step **D.** next
GMS not working	**D.** Check for power to GMS	Measure 120 volts AC from Terminal strip 2 terminal #15 to nuetral (blue) terminal out of FTR (02FTRBU) Yes--go to Step **E.** next No-- check continuity of wires to GMS.
	E. Check for power from GMS	Measure 120 volts AC from Terminal strip 2 terminal #14 to nuetral (blue) terminal out of FTR (02FTRBU) Yes--Go to Step **F.** next No--replace GMS
Grinding Motor Relay not working	**F.** Check for power to relay Coil (Relay should click when GMS is turned on.)	Check for 120 Volts (AC) from A1 to A2 of Grinding motor Relay (REL) Yes--Go to Step **G.** next No-- check wires to Grinding motor Relay A1 & A2.
No Power to Relay Contacts	**G.** Verify Power to Relay Contacts	(REL) Terminals L1 to L2 for 120 Volts (AC) Yes--Go to Step **H.** next No--Check wires to REL Term L1 & L2
Bad Contacts in Grinding motor Relay	**H.** Verify power out of Grinding Motor Relay.	(REL) Terminals T1 to T2 for 120 Volts (AC) Yes--Go to Step **I.** next No--Replace Gringing Motor Relay
Bad Circuit Breaker/ Bad Grinding Motor	**I.** Verify Power to Grinding motor Cord.	Verify wiring at terminals 1, 2 & 3 on Terminal Strip 1. Check 42TB1-1 to 64TB1-2 for 120 Volts (AC). Yes-- Check motor cord terminals. Replace motor. No-- Check continuity of circuit breaker. Replace.

ELECTRICAL TROUBLESHOOTING (Continued)

PROBLEM--SPIN DRIVE NOT WORKING IN SPIN MODE.

Assuming (SSS) System Start Switch is on with 120 volts AC to control panel and all other functions are working.

Verify all wires shown on the wiring diagram are correct and pull on wire terminals with approximately 3 lbs force to verify there are no loose terminal connections and/or no loose crimps between the wire and the terminal. If problem persists, test as listed below.

Possible Cause	*Checkout Procedure*	
Spin Speed Pot (SSP) set to zero	**A.** Set (SSP) to 200 on the control panel.	Spin Motor works Yes--end troubleshooting No--go to Step **B** next
Spin Motor Switch (SMS) is not on	**B.** Turn (SMS) switch on	Spin Motor works Yes--end troubleshooting No--go to Step **C.** next
Circuit Breaker is Tripped (4 AMP)	**C.** Reset Circiut Breaker on right side of machine by above the Control Panel. Push in if tripped.	Spin Motor works Yes--end troubleshooting No--go to Step **D.** next
Spin Drive Control (SDC) is not working	**D.** Check (SDS) L1 to L2 for 120 Volts AC	(SDC) Remove wires to Terminals L1and L2 and test betwen wires for 120V AC. Yes--reconnect wires to board then go to Step **E.** next No--Verify Power to Circuit Breaker and SMS and continuity of wires. Replace CB or SMS if needed.
	E. With the Selector switch in spin and the spin pot set to 400RPM Check (SDC) A1 and A2 for 90-120 Volts DC	(SDC) Remove wires, test Terminals A1 to A2 on the board for approx 90-120 V DC Yes--reconnect wires and go to Step **F.** next No--go to Step **G.**
Spin Drive motor is bad	**F.** Check spin motor continuity **DISCONNECT POWER FROM MACHINE !**	Remove wires at Terminal Strip 1, Term 4 & 5 check 0 ohms across the black and white wires from the motor. Reading 0 Ohms Yes--end troubleshooting, spin drive should run, if not, replace motor. No--go to Step **J.**
Spin drive control in Torque mode	**G.** Check continuity of mode selector switch.	Light on SDC next to SP should be ON. If not, remove wires 41SDCMOD and 44SDCCOM from SDC control board. Check continuity of wires, should read 0 ohms. Light next to SP is on? No--Check continuity of STS switch, replace if bad. (Machine was in Torque mode) Yes-- Light next to SP is on but machine does not work. Reinstall wires, Go to Step **H**. next

ELECTRICAL TROUBLESHOOTING (Continued)

Possible Cause	Checkout Procedure	
Spin Torque Pot (TORQ) is not set correctly	**H.** Check remote torque pot (TORQ) on the (SDC) board.	(TORQ) on (SDC) board, should be set as labled on page 25. Adjust if incorrect and check Spin Drive Function. All Potentiometers are set correctly Yes--Go to Step **I**. next No--Retest after adjustments.
(SSP) is not working	**I.** (SSP) (10K) Remove 3 Remote Speed wires. Red wire to term 2 White wire to term 1 Black wire to term 3 **DISCONNECT POWER FROM MACHINE !**	Check for 10,000 ohm Red wire to white wire Full CCW--0 ohms Full CW-10,000 ohms Red wire to black wire Full CCW--10,000 ohms Full CW--0 ohms Yes--replace (SDC) No--replace (SSP)
Worn Motor Brushes	**J.** Inspect Motor Brushes	Remove the brushes one at a time and maintain orientation for reinsertion. See if brush is worn short 3/8" (10 mm) minimum length. Yes--replace motor brushes No--replace Spin Drive Motor

ELECTRICAL TROUBLESHOOTING (Continued)

PROBLEM--Spin Drive not working in relief mode.

Assuming (SSS) System Start Switch is on with 120 volts AC to control panel and all other functions are working.

Verify all wires shown on the wiring diagram are correct and pull on wire terminals with approximately 3 lbs force to verify there are no loose terminal connections and/or no loose crimps between the wire and the terminal. If problem persists, test as listed below.

Possible Cause	Checkout Procedure	
Relief Torque Pot (RTP) set to zero.	**A.** Set (RTP) to 20 on the control panel.	Spin Motor works. Yes--end troubleshooting No--go to Step **B.** next
Spin Motor Switch (SMS) is not on.	**B.** Turn (SMS) switch on.	Spin Motor works. Yes--end troubleshooting No--go to Step **C.** next
Circuit Breaker is Tripped (4 AMP)	**C.** Reset Circiut Breaker on the right side of the machine. Push in if tripped.	Spin Motor works. Yes--end troubleshooting No--go to step **D.** next
Spin Drive Control (SDC) is not working	**D.** Check (SDC) L1 to L2 for 120 Volts AC	(SDC) Remove wires to Terminals L1and L2 and test betwen wires for 120V AC. Yes--reconnect wires, go to Step **F.** No--Go to Step **E**. next
CB or Spin Motor Switch (SMS) is bad	**E.** Check power into (SMS) terminal 6 for 120 Volts AC	Remove Wire to SMS Terminal 6 "89SMS-6" and check between the wire and nuetral (blue) terminal out of (FTR) (02FTRBU) for 120 VAC Yes--Check switch continuity, replace No--Check CB continuity, replace.
	F. Check (SDC) A1 & A2 for approx. 20 Volts DC (Have Relief Torque set to maximum torque - full clockwise.	Check for approx. 20 VDC from Terminal Strip 1 Terminal 4 (48TB1-4) to Terminal 5 (49TB1-5) Yes--go to Step **G.** next No--Go to Step **I**.
Spin Drive motor is bad	**G.** Check spin motor continuity **DISCONNECT POWER FROM THE MACHINE**	Remove motor wires at Terminal Strip 1 (left side lower strip), Term 4 & 5 and check 0 ohms across the black and white motor wires Yes--end troubleshooting motor should work (if it does not, replace motor) No--go to Step **H.** next
Worn Motor Brushes	**H.** Inspect Motor Brushes **DISCONNECT POWER FROM MACHINE !**	Remove the brushes one at a time and maintain orientation for reinsertion. See if brush is worn short 3/8" (10 mm) minimum length Yes--replace motor brushes No--replace Spin Drive Motor

ELECTRICAL TROUBLESHOOTING (Continued)

Possible Cause	Checkout Procedure	
Board is in spin mode.	**I.** Spin Torque Selector not working	Light next to TQ on SDC board should be ON. If not remove wires 41SDCMOD and 44SDCCOM from SDC control board. Machine works. Yes--Machine was in spin mode. Check continuity of STS switch. Replace if bad. No-- Light next to TQ is ON but machine does not work, go to step **J**.
Relief Speed Pot (RSP) is not set correctly.	**J.** Check (RSP) remote speed (10k) on (SDC) board	Verify (SPEED) pot setting on the (SDC) board. Should be set as specified on pages 24 and 25. Adjust if incorrect and check Relief Torque function. Works Yes--end of troubleshooting No--go to Step **K**. next
(RTP) is not working	**K.** (RTP) (10K) Remove 3 Remote Torque Wires red wire to term 2 white wire to term 1. black wire to term 3.	Check for 10,000 ohms Red wire to white wire Full CCW--0 ohms Full CW--10,000 ohms Red wire to black wire Full CCW--10,0000 ohms Full CW--0 ohms Yes--go to Step **L**. nest No--replace (RTP)
Switches on SDC incorrect	**L.** Verify postion of all pots and switch on SDC	Verify postion of 4 pots on board. Should be set as specified on pages 24 and 25. Verify that the Troque reduction feature is in the OFF position. (pushed toward the pots on board). Motor works Yes--end of troubleshooting No--replace SDC.

ELECTRICAL TROUBLESHOOTING (Continued)

PROBLEM : Spin drive speed goes at one speed only.

Possible Cause	Remedy	
Wiring hookup to potentiometer is improper. (If components have been replaced)	**A.** Check potentiometer wiring for proper hookup. See that speed pot is wired per electrical diagram	If wiring is wrong, correct and test. Yes--end of troubleshooting No--Go to Step B. next
Defective spin speed control (SSP) potentiometer.	**B.** (SSP) 10K Remove 3 remote speed wires. red wire to term 2 white wire to term 1 black wire to term 3	Check for 10,000 ohms Red wire to white wire Full CCW--0 ohms Full CW--10,000 ohms Red wire to black wire Full CCW--10,000 ohms Full CW--0 ohms Yes-- Go to Step C. next No--Replace (SSP)
Main circuit board dial pot settings not correct. (If board has been replaced	**C.** Check all pot settings on both boards as of the (SDC) shown on Pages 25. (See Adjustment Section Spin Drive Control [SDC] Board Setting).	Yes-- end of troubleshooting No--replace (SDC)

PROBLEM : Spin drive motor speed varies.

IR Comp trim pot not adjusted properly.	**A.** See adjustment section for trim pot setting on Page 25.	Original adjustment was not set properly
Torque to rotate the reel too high.	**B.** Readjust bearing preload for the reel. Maximum torque load 25 in./lb to rotate reel.	Too much load on drive motor will cause motor to hunt and vary speed.
Check all terminal connections for tightness.	**C.** When .250 female spade terminals are not tight, remove and crimp slightly together. When reinstalling, push on pressure should have increased for good contact.	When connections are not tight the control board varies voltage to the DC motor which then varies speed.

ELECTRICAL TROUBLESHOOTING (Continued)

PROBLEM--Traverse Drive not working.

Assuming (SSS) System Start Switch is on with 120 volts AC to control panel and all other functions are working.

Verify all wires shown on the wiring diagram are correct and pull on wire terminals with approximately 3 lbs force to verify there are no loose terminal connections and/or no loose crimps between the wire and the terminal. If problem persists, test as listed below.

Possible Cause	Checkout Procedure	
Traverse Motor Switch (TMS) is not on	**A.** Turn on (TMS)	Traverse works Yes--end troubleshooting No--got to Step **B.** next
Traverse Speed Pot (TSP) set to zero	**B.** Set (TSP) to 35 on the control panel	Traverse works Yes--end troubleshooting No--go to Step **C.** next
Fuse on Traverse Drive Control (TDC) has failed	**C.** Check fuse and replace if failed. See Page 24. Too heavy a grind causes grinding head traverse motor to overload and blow the fuse. NOTE: The Fuse can not be checked visually. Remove fuse and use Ohm test to check fuse. If the fuse needs replacing you **MUST** use a **3 amp slo-blo fuse.** Part Number 5NT3707546.	Traverse works Yes--end troubleshooting No--go to Step **D.** next
Check power to the Traverse Drive Control (TDC)	**D.** Check for 120 Volts (AC) incoming to (TDC) with machine on and TMS set to on.	On (TDC) check Terminal L1 to L2 for 120 Volts AC Yes--Go to Step **F.** next No--Go to Step **E.** next
Bad Traverse Motor Switch (TMS)	**E.** Check for 120 Volts AC at (TMS). (Make certain (TMS) is on)	Measure 120 volts AC from TMS Terminal 5 to nuetral (blue) terminal out of FTR (02FTRBU) Yes--Check continuity of wires from Switch to Control. Replace wires. No--Flip Switch and check again- Works--Switch is upside down. Does not work-- Check wiring/Verify Continuity/ Replace Switch

ELECTRICAL TROUBLESHOOTING (Continued)

Possible Cause	Checkout Procedure	
No DC Voltage from (TDC) Traverse Drive Control	**F.** Check for 90 Volts DC across (TDC) terminals #A1 to #A2 this voltage drives the DC traverse motor. NOTE: Traverse must be on and have (TSP) turned full CW to maximum voltage of 90 VDC	Check (TDC) terminals #A1 to #A2 for 90 Volts DC Yes--go to Step **G.** next No--go to Step **H.** next
Traverse Motor is bad	**G.** Check traverse motor continuity **DISCONNECT POWER FROM MACHINE**	Remove motor wires from Terminal Strip 1 terminals #7 & #8 check for 0 ohms across the black and white wires Yes--end troubleshooting, motor should work (if it does not, replace motor) No--go to Step **J.** next
(TSP) is not working	**H.** Check (TSP) (10K) on control panel	(TDC) Pin #8 to #7 Pot Full CCW Pot Full CW 0VDC 9.75 VDC Pin #8 to 9 Pot Full CCW Pot Full CW 9.75 VDC 0 VDC Yes--replace the (TDC) No--go to Step **I.** next
(TSP) (10K) is bad	**I.** Check (TSP) for 10,000 ohms. Remove three wires from (TDC) red from term #8 white from term #7 black from term #9	Check for 10,000 ohms red to white wires Full CCW--0 ohms Full CW--10,000 ohms Red to black wires Full CCW--10,000 ohms Full CW--0 ohms Yes--replace the (TDC) No--replace (TSP)
Worn motor brushes	**J.** Inspect Motor Brushes **DISCONNECT POWER FROM MACHINE**	Remove the brushes one at a time and maintain orientation for reinsertion. See if brush is worn short, 3/8" (10 mm) minimum length. Yes--replace motor brushes No--replace Traverse Motor

PROBLEM--Traverse does not stop to reverse directions when flag goes under the proximity switch on the left side or right side of machine.

Gap between flag and prox is incorrect.	**A.** Gap between flag and prox should be 3/16 to 1/4" (4-6 mm). Prox LED does not light when flag is under prox.	If incorrect, adjust per adjustment section of manual. Yes--end troubleshooting No--go to Step B. next	
Proximity Switch is bad.	**B.** Proximity switch is not working properly or wire connections are loose.	First check to see if proximity light comes on. When the light is on, it means that there is electricity coming to proximity switch. Actuate prox switches with steel tool to take measurements.	The light coming on shows the proximity is getting electrical contact.
		Left proximity (PROX 1) check Traverse drive Control (TDC) between terminals #13 (black wire) and #15 (brown wire).	Proximity light on- 0 Volts DC Proximity light off- 12 Volts DC
		Right proximity (PROX) check #14 (black wire) and #15 (brown wire).	Proximity light on- 0 Volts DC Proximity light off- 12 Volts DC
			Replace proximity switch if the voltages do not read as above.

PROBLEM--Traverse speed control goes at one speed only.

Possible Cause	Checkout Procedure	
Defective speed control potentiometer	**A.** Check potentiometer (Pot) on control panel.	Traverse Drive Control Pin #8 to 7 Pot full CCW Pot Full CW 0 VDC 9.75 VDC Pin #8 to 9 Pot full CCW Pot Full CW 9.75 VDC 0 VDC Yes--Pot is OK No--Go to Step **B.** next
	B. Check potentiometer for 10,000 ohms. Remove three wires from Traverse Drive Control red from term #8 white from term #7 black from term #9	Check for 10,000 ohms Red to White wires Full CCW - 0 ohms Full CW - 10,000 ohms Red to Black wires Full CCW - 10,000 ohms Full CW - 0 ohms Yes--Go to Step **C.** next No--replace potentiometer. Wiper inside of potentiometer controls speed. Wiper may be bad and not making contact.
Wiring hookup to potentiometer is improper. (If components have been replaced.)	**C.** Check potentiometer wiring for proper hookup. See that speed pot is wired per electrical diagram	Verify potentiomter White wire to terminal 7, Red wire to terminal 8 and Black wire to terminal 9, if not, correct. Check for Proper function. Yes--end troubleshooting No--Go to Step **D.** next
Main circuit board dial pot settings not correct. (If board has not been replaced.)	**D.** Check all pot settings on circuit board as shown in wiring diagram. (See adjustment section Traverse Motor Control Board Settings.)	Minimum and maximum pot settings effect traverse speed.

PROBLEM--If the carriage traverses to one end of stroke or the other and it stops and does not reverse direction.

Possible Cause	Remedy	Reason
Proximity switch is not working properly or wire connections are loose	First check to see of proximity light comes on. When the light is on, it means that there is electricity coming to proximity switch. Actuate proximity switches with steel tool to take measurements.	The light coming on shows the proximity is getting electrical contact.
	Left proximity (PROX1) check Traverse drive Control (TDC) between terminals #14 (black wire) and #15 (brown wire).	Proximity light on- 0 Volts DC Proximity light off- 12 Volts DC
	Right proximity (PROX) check (TDC) between terminals #13 (black wire) and #15 (brown wire).	Proximity light on- 0 Volts DC Proximity light off- 12 Volts DC
		Replace proximity switch if the voltages do not read as above.

PROBLEM--Insufficient hesitation at carriage stops prior to reversing traverse.

The dwell time on the traverse drive control not set properly.	Reset dwell time as required. One increment increases Dwell time by 1/2 second.	

PROBLEM--Traverse changes directions erratically while running in traverse cycle.

Loose wire to proximity switch.	Check wire connections from the proximity switches and tighten down screws.	A loose wire connection will give intermittent electrical contact.

MECHANICAL TROUBLESHOOTING

PROBLEM-- Excessive noise or vibration on one end of the machine.

Possible Cause	Checkout Procedure
Set screws on bearings are not tight on grinding shaft.	Tighten set screws located on bearings

PROBLEM--Grinding wheel traverse binding.

Possible Cause	Checkout Procedure
Shafts are dirty.	Clean the shafts as specified in the maintenance section of this manual.
Grinding shaft is at a severe angle.	Raise or lower one end of the shaft until approximately level. This grinder is not designed to operate at a severe angle. Adjust reel or setup until the shaft is approximately level.

PROBLEM-- Handwheel or vertical indicator gage "walks" during grinding.

Possible Cause	Checkout Procedure
Bracket connecting gage to vertical adjuster is loose.	Push lightly up and down on the digital gage to see if it is loose. Tighten the screws on the bracket to the vertical adjuster or remove the gage and tighten the screws from the bracket to the gage.
Plug and set screw loose.	Tighten the drag on the vertical shafts by tightening the setscrew located on the back of the vertical adjuster husing. (See Vertical Infeed Shaft Drag in the adjustment section.)

PROBLEM--Reels ground have high/low blades

Possible Cause	Checkout Procedure
Traverse Speed set too fast.	Check roundness using the digital gage. Traverse speed should be set approximately 12 ft/ min. (4 meters/min.) if roundness is varying.

MECHANICAL TROUBLESHOOTING (Continued)

PROBLEM-- Uneven traverse speed or grinding stock removal from reel is irregular.

Possible Cause	Checkout Procedure
Linear bearings are damaged or have grit buildup causing uneven traversing load.	Clean shafts and bearings according to the lubrication of Grinding Shaft and Linear Bearings instructions in the Maintance Section of the manual. If problem persists replace linear bearings according to the replacement of linear bearings instructions.
Grinding shaft or wheels have grit buildup causing uneven loading.	Clean the wheel flanges and shaft (see Lubrication of Grinding Shaft). Replace flanges or shaft if necessary.
Left side traverse pulley is full of grit causing the pulley not to turn freely on shaft.	Clean and lubricate the shaft and pulley.

PROBLEM--Traverse Belt Slips

Possible Cause	Checkout Procedure
Clamping tip is not adjusted properly.	Adjust the clamping tip as specified in the Traverse Clamp Force section of this manual.
Too heavy a grind for traverse speed.	Slow the traverse speed or back off on the amount that is being infed.

PROBLEM-- Too heavy a burr on cutting edge of reel blades.

Possible Cause	Checkout Procedure
Traverse speed set too high causing a heavy burr on the reel blade when spin grinding.	Traverse speed should be set lower approximately 12 ft./min (4 meters/min.) for a smaller burr on the cutting edge.

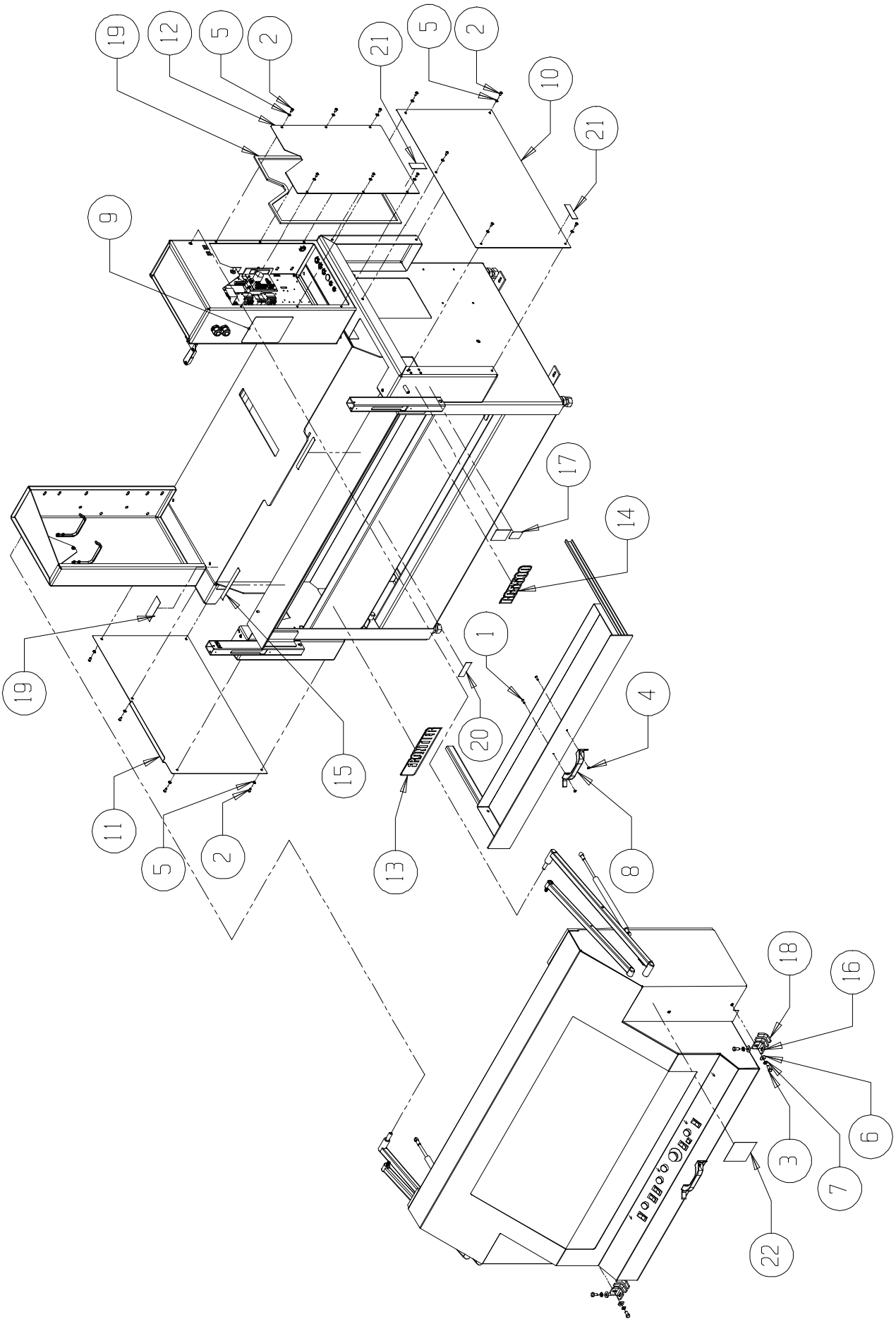
PROBLEM--Cone shaped reel after grinding.

Possible Cause	Checkout Procedure
Grinding head travel not parallel to the reel center shaft.	Grinding head travel was not setup parallel to the reel center shaft in vertical and horizontal planes. See Align the Reel Section.

PROBLEM--Relief grind on the reel blades do not go the full length of the reel.

Possible Cause	Checkout Procedure
Need to adjust the finger stop.	Adjust finger stop and check for contact full length.
Need to dress the Wheel to the correct angle	Dress the wheel (For more detail, see relief grinding section in operating instructions of the manual.)

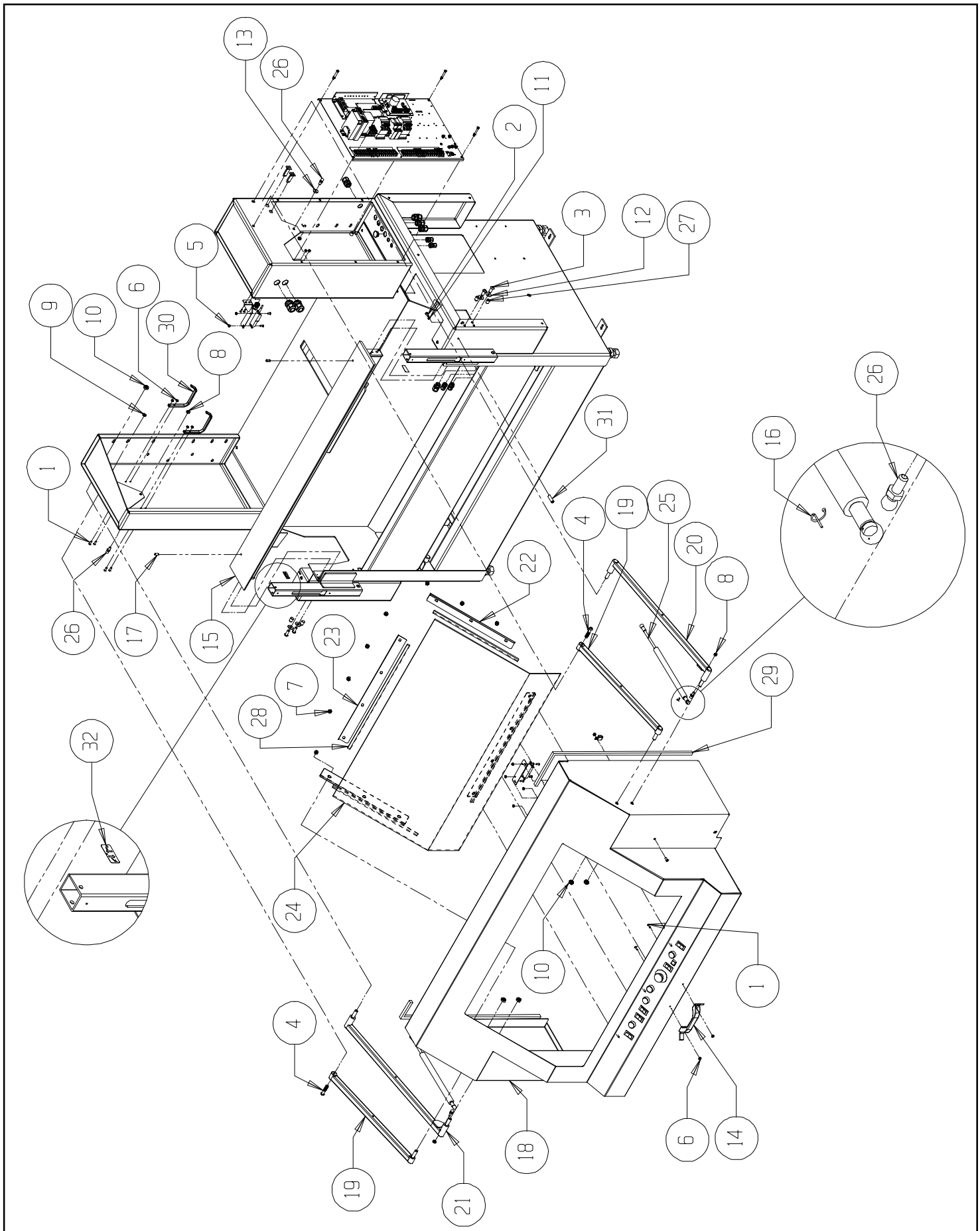
EXPLODED VIEW: CABINET AND DOOR ASSEMBLY



PARTS LIST: CABINET AND DOOR ASSEMBLY

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	5NTB191013	10-24 x 5/8 Button Head Socket Cap Screw
2	5NTB250816	1/4-20 x 1/2 Button Head Socket Cap Screw
3	5NTB371201	3/8-16 x 3/4 Hex head Cap Screw
4	5NTJ197000	10-24 Locknut Jam Nylon Insert
5	5NTK251501	1/4 Lockwasher Split
6	5NTK370001	3/8 SAE Flat Washer
7	5NTK371501	3/8 Lockwasher Split
8	5NT09891	Grab Handle Enclosure
9	5NT55279	Taper Chart Decal
10	5NTRG5509001	Side Cover Panel - Right Hand
11	5NTRG5509002	Side Cover Panel - Left Hand
12	5NTRG5509003	Electrical Cover Panel
13		Frontier Decal - Large (see page 7 of Operators Manual)
14		RG5500 Decal (see page 7 of Operators Manual)
15		Tooling Bar Position Decal (see page 7 of Operators Manual)
16	5NT55490	Door Shipping Bracket
17	5NT80413	Patent Decal
18	5NT3708378	Foam Strip .25 Thick (Sold per Foot)
19		Wheel RPM Caution Decal (see page 7 of Operators Manual)
20		Sharp Caution Decal (see page 7 of Operators Manual)
21		Electrical Warning Decal (see page 7 of Operators Manual)
22		Machine Caution Decal (see page 7 of Operators Manual)

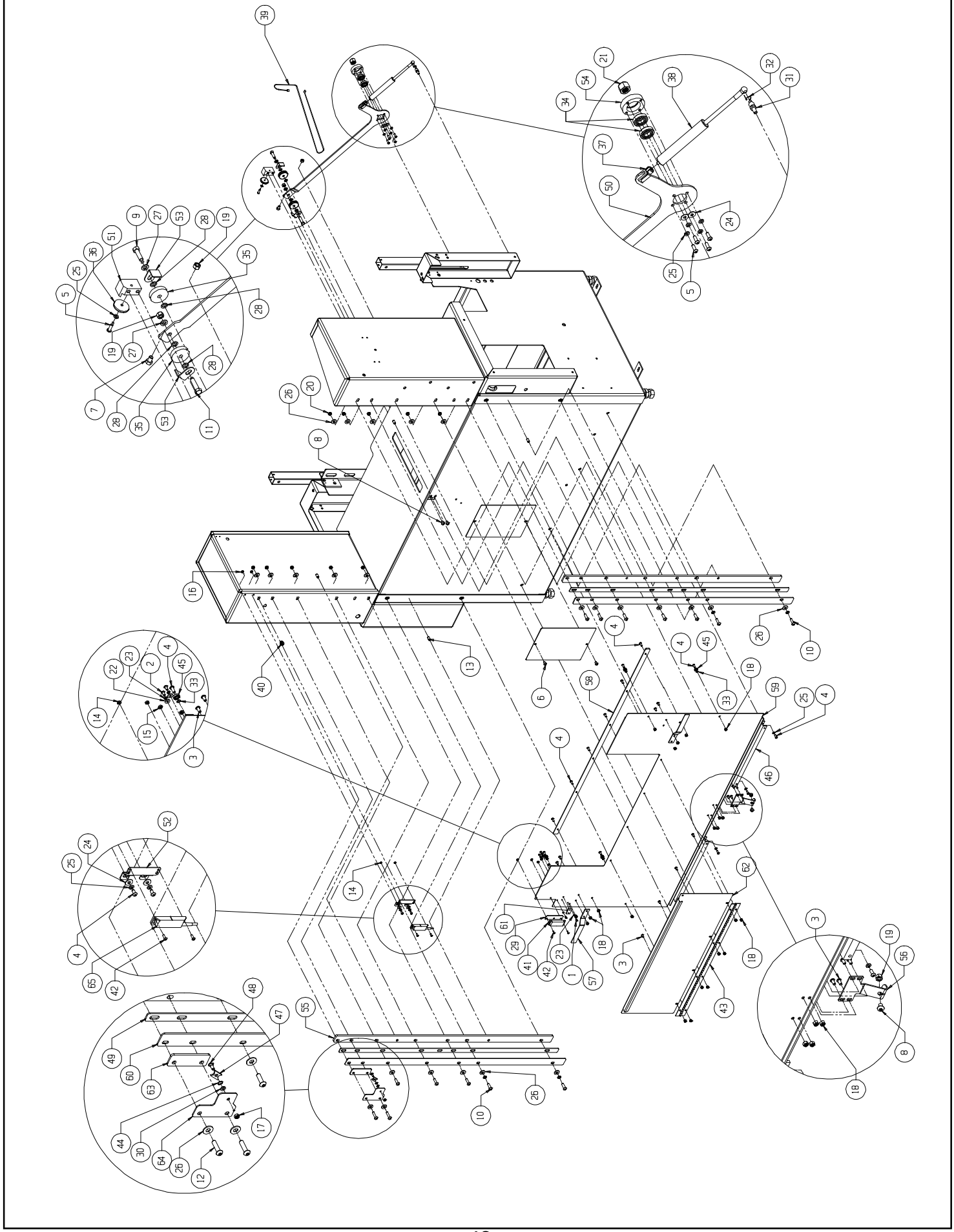
EXPLODED VIEW: CABINET AND DOOR ASSEMBLY



PARTS LIST: CABINET AND DOOR ASSEMBLY

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	5NTB191013	10-24 x 5/8 Button Head Socket Cap Screw
2	5NTB250801	1/4-20 x 1/2 Hex Head Cap Screw
3	5NTB371616	3/8-16 x 1.0 Button Head Socket Cap Screw
4	5NTB373216	3/8-16 x 2 Button Head Socket Cap Screw
5	5NTJ167000	8-32 Nylon Insert Locknut Jam
6	5NTJ197000	10-24 Locknut Jam Nylon Insert
7	5NTJ311000	5/16-18Hex Full Nut
8	5NTJ317000	5/16 Locknut Jam Nylon Insert
9	5NTJ377100	3/8-16 Locknut Full Nylon Insert
10	5NTJ507000	1/2-13 Locknut Jam Nylon Insert
11	5NTK251501	1/4 Lockwasher Split
12	5NTK370101	Flat Washer 3/8 Heavy
13	5NTR000453	5/16 ID x 7/8 OD x 1/8 Thick Washer
14	5NT09891	Grab Handle Enclosure
15	5NT50234	Tooling Bar-Machined
16	5NT80421	Retaining Clip - Gas Spring
17	5NTH251202	.25 Diameter x 3/4" long Roll-Pin
18	5NT55713	Door Weldment
19	5NT55430	Arm Weldment - Short
20	5NT55431	Arm Weldment - Long Right Hand
21	5NT55433	Arm Weldment - Long Left Hand
22	5NT6509182	Window Retaining Bracket - Medium
23	5NT6509110	Window Retaining Bracket - Long
24	5NT55465	Polycarbonate Window - Formed
25	5NT80416	Air Spring
26	5NT80418	Air Spring Stud
27	5NT3706075	Spirol Pin .25 Dia. x 1.0 Long
28	5NT3708378	Foam Strip .25 Thick (Sold per Foot)
29	5NT3708889	Foam Seal .50 High (Sold per Foot)
30	5NT3708890	Storage Hook
31	5NT3706044	Gage Mounting Pin
32	5NT6309111	Up/Down Decal

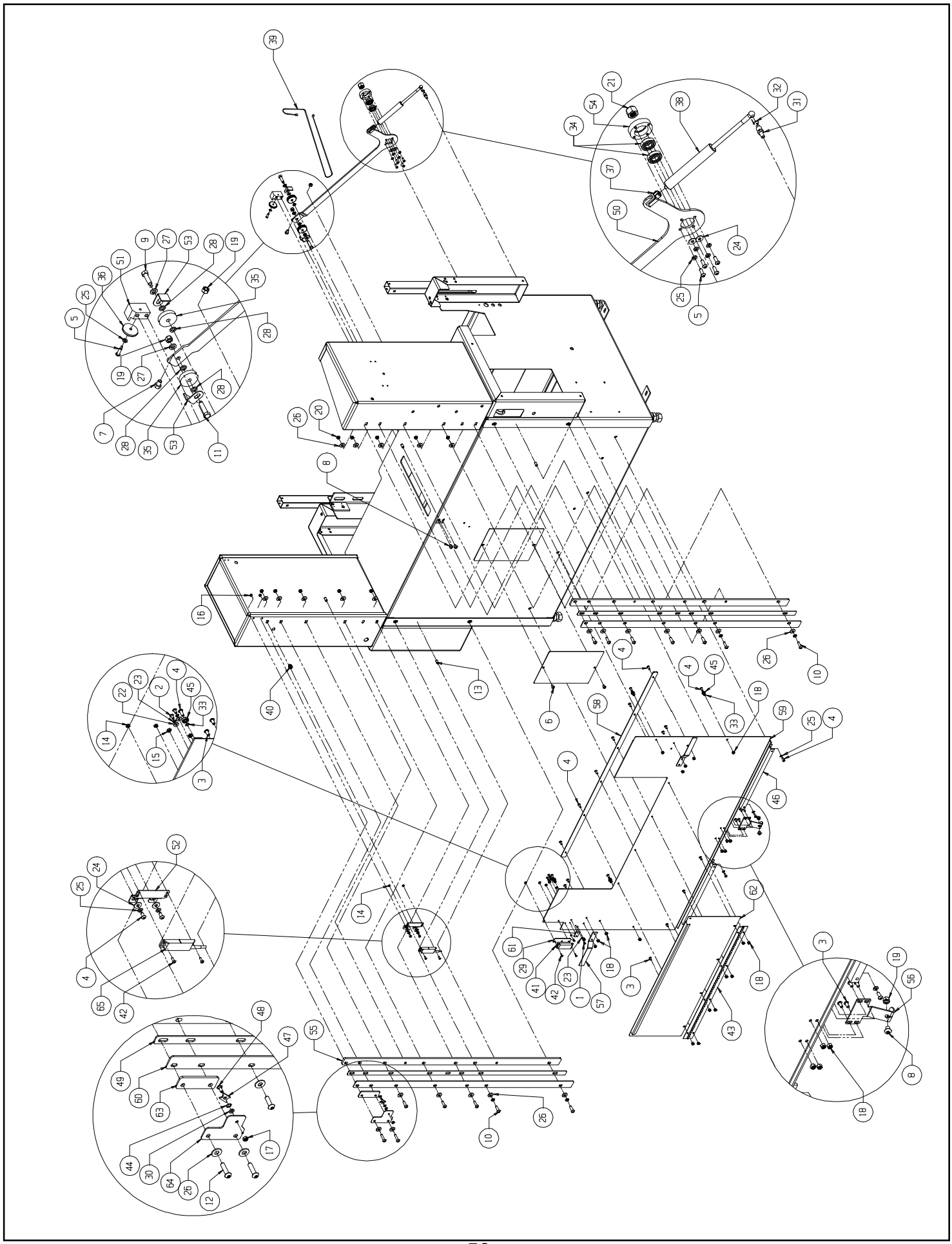
PARTS LIST: REAR DOOR ASSEMBLY



PARTS LIST: REAR DOOR ASSEMBLY

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	5NTB190411	Socket Head Cap Screw 10-24 x 1/4 Long
2	5NTB190613	Button Head Socket Cap Screw 10-24 x 3/8 Long
3	5NTB250816	Button Head Socket Cap Screw 1/4-20 x 1/2 Long
4	5NTB251016	Button Head Socket Cap Screw 1/4-20 x 5/8 Long
5	5NTB251216	Button Head Socket Cap Screw 1/4-20 x 3/4 Long
6	5NTB310813	Button Head Socket Cap Screw 5/16-18 x 1/2 Long
7	5NTB370801	Hex Head Cap Screw 3/8-16 x 1/2 Long
8	5NTB370816	Button Head Socket Cap Screw 3/8-16 x 1/2 Long
9	5NTB372001	Hex Head Cap Screw 3/8-16 x 1-1/4 Long
10	5NTB372016	Button Head Socket Cap Screw 3/8-16 x 1-1/4 Long
11	5NTB372401	Hex Head Cap Screw 3/8-16 x 1-1/2 Long
12	5NTB372416	Button Head Socket Cap Screw 3/8-16 x 1-1/2 Long
13	5NTH371202	3/8 Diameter Roll Pin x 3/4 Long
14	5NTJ167000	#8-32 Jam Locknut
15	5NTJ191000	#10-24 Jam Locknut
16	5NTJ252000	1/4-20 Hex Jam Nut
17	5NTJ257000	1/4-20Jam Locknut
18	5NTJ257100	1/4-20 Locknut Full
19	5NTJ371000	3/8-16 Hex Nut
20	5NTJ377000	3/8-16 Jam Locknut
21	5NTJ627100	5/8-11 Locknut
22	5NTK190001	#10 Flat Washer
23	5NTK191501	#10 Lock Washer
24	5NTK250001	1/4 Flat Washer
25	5NTK251501	1/4 Lock Washer
26	5NTK370001	3/8 Flat Washer
27	5NTK371501	3/8 Lock Washer
28	5NT09054	Flat Washer .63 OD x .39 ID
29	5NT55492	Door Switch Spacer
30	5NT80406	Flat Washer .5 OD x .27 ID
31	5NT80418	Gas Spring Stud
32	5NT80421	Retaining Clip for Gas Spring
33	5NT3249153	Flat Washer .38 OD x .25 ID
34	5NT3706032	Ball Bearing R10
35	5NT3706097	Pulley 1.75 OD x .37 ID
36	5NT3706098	Pulley 1.50 OD x .25 ID
37	5NT3706099	Clevis Rod End
38	5NT3706100	Gas Spring 3.9 Stroke
39	5NT3706101	Cable Assembly
40	5NT3707029	Strain Relief - Liquid Tight .19-.30 Wire Dia.
41	5NT3707647	Coded Door Magnet
42	5NT3708820	#8-32 x 1/2 Long Button Head Safety Screw
43	5NT3708869	Spring Hinge
44	5NT3708998	Wave Spring
45	5NT3709597	Ball Bearing R4
46	5NT6209165	Lower Guide Bar
47	5NT6329131	Catch
48	5NT6329133	Catch Pin
49	5NT6329136	Rear Slide Spacer Plate

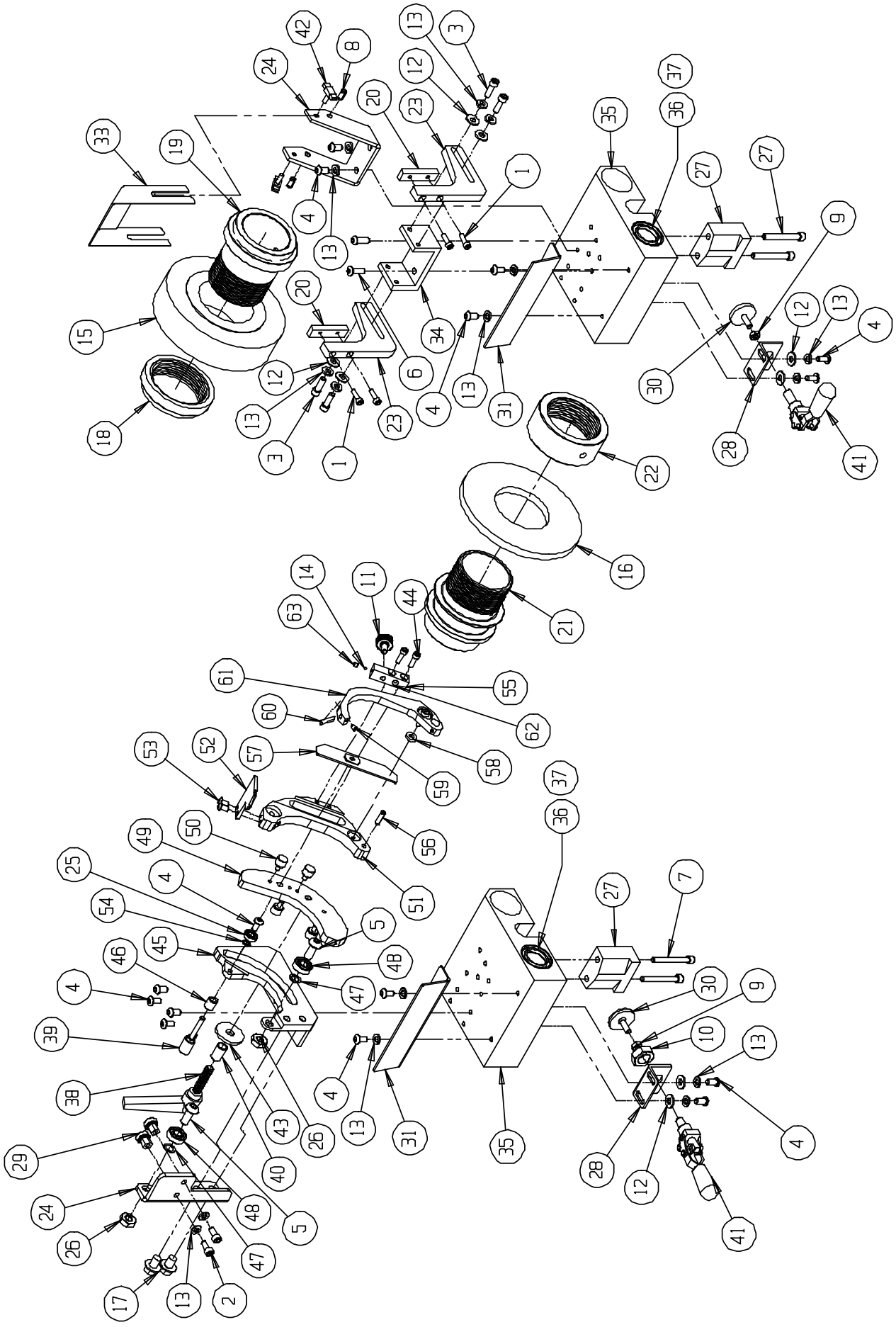
PARTS LIST: REAR DOOR ASSEMBLY



PARTS LIST: REAR DOOR ASSEMBLY

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
50	5NT6329163	Rear Door Arm
51	5NT6329164	Pulley Block
52	5NT6329165	Door Switch Bracket (Rear Door)
53	5NT6329166	Cable Guide
54	5NT6329167	Bearing Block
55	5NT6329172	Rear Door Inner Slide
56	5NT6329173	Cable Bracket (Door)
57	5NT6329174	Rear Door Lift Handle
58	5NT6329175	Rear Door Stiffener
59	5NT6329177	Rear Door Sliding
60	5NT6329179	Rear Door Outer Plate
61	5NT6329180	Door Stop Block
62	5NT6329181	Hinged Walker Panel
63	5NT6329182	Door Stop Spacer Plate
64	5NT6329183	Door Catch Bracket
65	5NT6329184	Door Switch Assembly

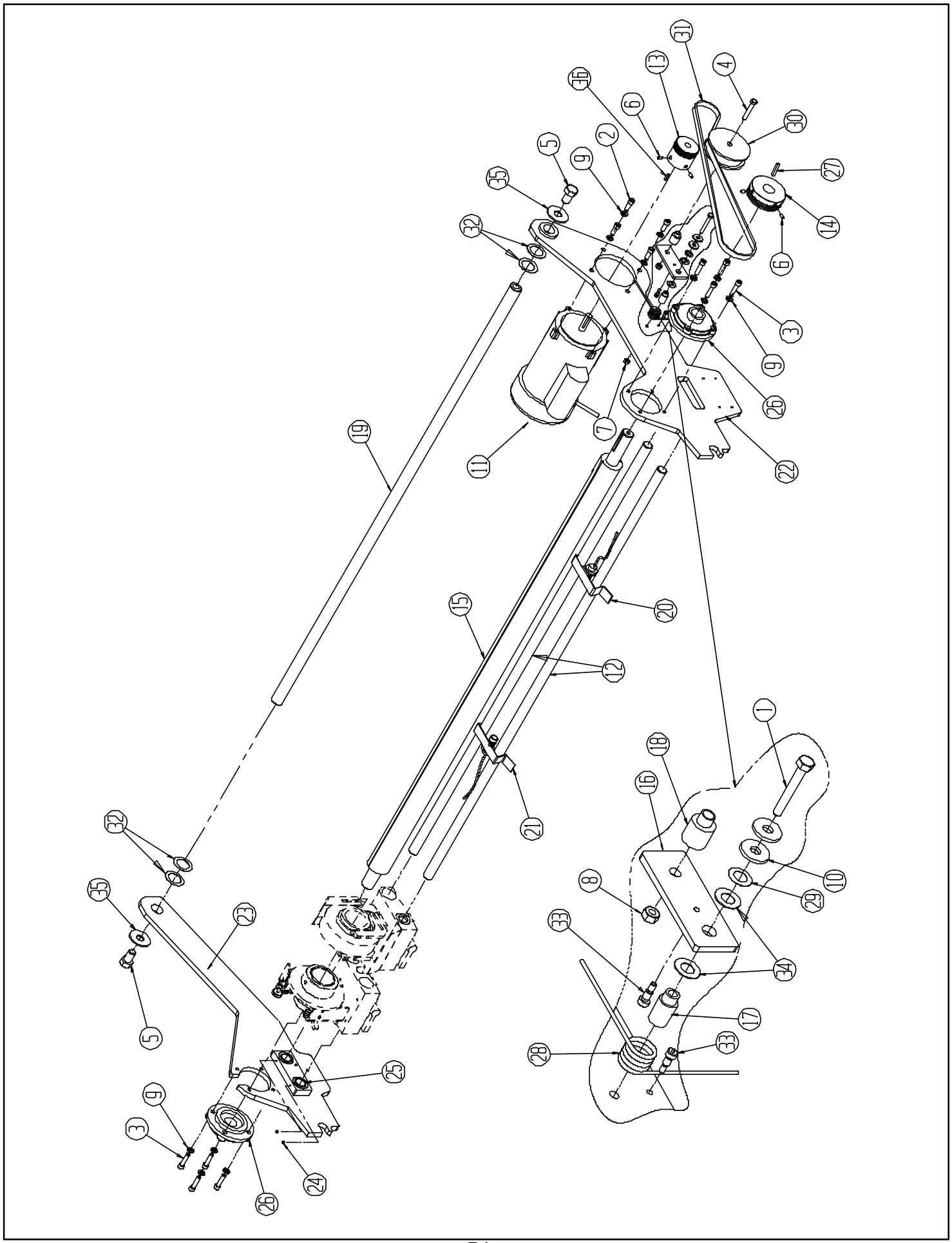
EXPLODED VIEW: GRINDING HEAD ASSEMBLY



PARTS LIST: GRINDING HEAD ASSEMBLY

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	5NTB191011	10-24 X 5/8 Socket Head Cap Screw
2	5NT3708848	1/4-28 x 1/2 Socket Head Cap Screw w/ patch
3	5NTB251211	1/4-20 x 3/4 Socket Head Cap Screw
4	5NTB250816	1/4-20 x 1/2 Button Head Socket Cap Screw
5	5NTB371216	3/8-16 x 3/4 Button Head Socket Cap Screw
6	5NTB251216	1/4-20 x 3/4 Button Head Socket Cap Screw
7	5NTB253211	1/4-20 x 2.00 Socket Head Cap Screw
8	5NTH250802	Roll Pin .25D x .50 Lg
9	5NTJ252000	1/4-20 Hex Jam Nut
10	5NTJ627200	5/8-18 Locknut Jam Nylon
11	5NT3708854	1/4-20 Knob Assembly
12	5NTK250001	Flat Washer 1/4
13	5NTK251501	1/4 Lockwasher Split
14	5NT3709852	1/8" Diameter Nylon Ball
15	5NT05720	Grinding Wheel 6 x 2.75B x 1.5W 46G
16	5NT05731	Grinding Wheel 6 x 2.75B x .38W 24G Type 1
17	5NT3708839	3/8-16 x 1/2 Screw w/locking Flange
18	5NT50037	Spin Flange Nut
19	5NT50039	Spin Wheel Flange
20	5NT50073	Wear Pad
21	5NT55200	Relief Wheel Flange
22	5NT55201	Relief Flange Nut
23	5NT50204	Spin Yoke
24	5NT55298	Bearing Support Bracket
25	5NT3708846	Ball Bearing .25 ID x .625 OD
26	5NTJ377000	3/8-16 Locknut Jam Nylon
27	5NT50297	Traverse Shoe
28	5NT50298	Traverse Clamp Bracket
29	5NT55296	Single Bearing Assembly
30	5NT50310	Belt Clamp Tip
31	5NT50320	Traverse Guard
32	5NT50321	Shield Mount Bracket
33	5NT50324	Spark Shield
34	5NT50329	Spin Support
35	5NT55582	Bearing Housing Assembly
36	5NT09404	Linear Bearing
37	5NT3709209	Oil Seal 1"ID x 1.57"OD x .187
38	5NT3708561	Adjustable Handle 3/8-16 x 1.56 Long
39	5NT3708835	Adjustable Handle 1/4-20 x 1.25 Long
40	5NT27115	Spacer - .386 ID x .50 OD x .75 Long
41	5NT80335	Destaco 602 Clamp
42	5NT80337	T-knob Assembly
43	5NT3589106	Washer
44	5NTB191031	10-32 x 5/8 Socket Head Cap Screw
45	5NT55297	Finger Rotate Base
46	5NT6009057	Spacer .265 ID x .438 OD x .50 L
47	5NT3708999	Flat Washer .38 ID x .56 ID x .03Thick
48	5NT3708036	Bearing
49	5NT55112	Cam Plate
50	5NT80392	Cam Follower - 1/2" Diameter
51	5NT55113	Finger Slide
52	5NT55117	Fixed Finger
53	5NTB190634	10-32 x 3/8" Button Head Socket Cap Screw
54	5NT3249153	Flat Washer .25 ID x .38 OD x .02 Thick
55	5NT55281	Index Finger Stop Block
56	5NTH181202	3/16 x 3/4" long Roll Pin
57	5NT55579	Locking Plate Weldment
58	5NT3708833	Spacer - .252 ID x .50 OD x .125 Long
59	5NTC190467	10-32 x 1/4" Socket Head Set screw
60	5NT55127	3/16 Diameter Index Stop Pin
61	5NT55501	Indexing Finger Assembly
62	5NT3708107	Compression Spring
63	5NTC190360	10-32 x 3/8" Socket Head Set screw

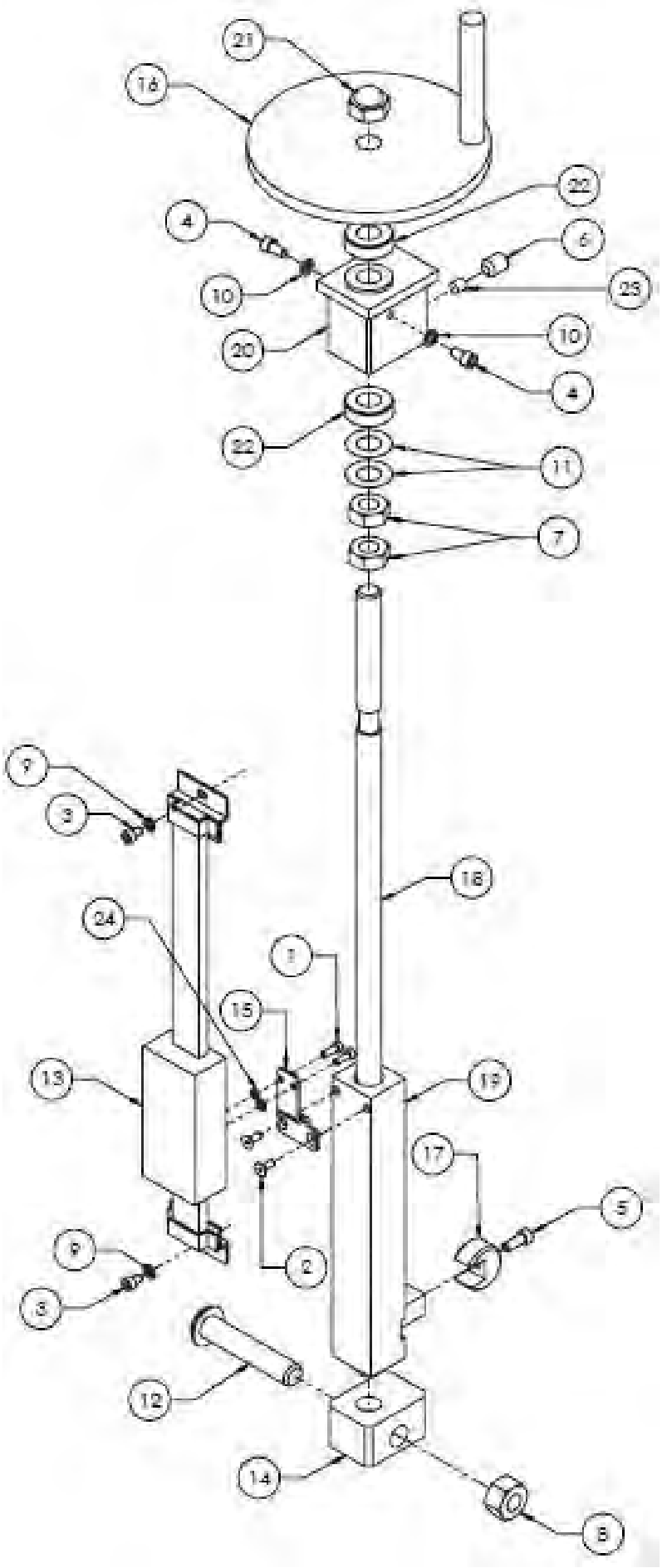
PARTS LIST: PIVOT ARM AND GRINDING SHAFT ASSY 1 of 2



PARTS LIST: PIVOT ARM AND GRINDING SHAFT ASSY 1 of 2

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	5NTB313601	5/16-18 x 2-1/4 Hex Head Cap Screw
2	5NTB371611	3/8-16 x 1 Socket Head Cap Screw
3	5NTB372411	3/8-16 x 1-1/2 Socket Head Cap Screw
4	5NTB373601	3/8-16 x 2-1/4 Hex Head Cap Screw
5	5NTB752001	3/4-10 x 1.25 Hex Head Cap Screw
6	5NTC250820	1/4-20 x 1/2 Cup Point Set Screw
7	5NTJ317000	5/16-18 Locknut Nylon Jam
8	5NTJ377100	3/8-16 Locknut Hex Nylok Full
9	5NTK371501	3/8 Lockwasher Split
10	5NTR000453	Flat Washer .31 x .88 x .104T
11	5NT3707690	Motor 1HP
12	5NT50235	Traverse Shaft
13	5NT50236	Pulley 2.45 Diameter Poly V
14	5NT50237	Pulley 3.72 Diameter Poly V
15	5NT50256	Grinding Wheel Shaft
16	5NT50279	Tensioner Bar
17	5NT50280	Tensioner Pivot Shaft
18	5NT50281	Tensioner Pulley Shaft
19	5NT50282	Pivot Support Shaft
20	5NT50311	Prox Switch Holder R.H.
21	5NT50318	Prox Switch Holder L.H.
22	5NT55404	Arm Assembly R.H.
23	5NT55407	Arm Assembly L.H.
24	5NTC190420	10-24 x 1/4 Cup Point Set Screw
25	5NT09680	Torrington Bearing
26	5NT80336	Piloted Bearing Flange
27	5NT80338	Key .25 sq x 1.25 Lg
28	5NT80342	Torsion Spring
29	5NT80343	Conical Washer .539 x .862 x .014T
30	5NT80349	Idler Pulley 4.0 Diameter
31	5NT80350	Poly V Belt
32	5NT80351	Conical Washer 1.40 x 2.03 x .024T
33	5NT3708425	Shoulder Bolt .313 D x .375 L
34	5NT3709019	Thrust Washer .500 x .937 x .032 T
35	5NT3709886	Flat Washer .812 x 2.25 x.135 T
36	5NT80126	Key 3/10 sq x 1.00 Lg

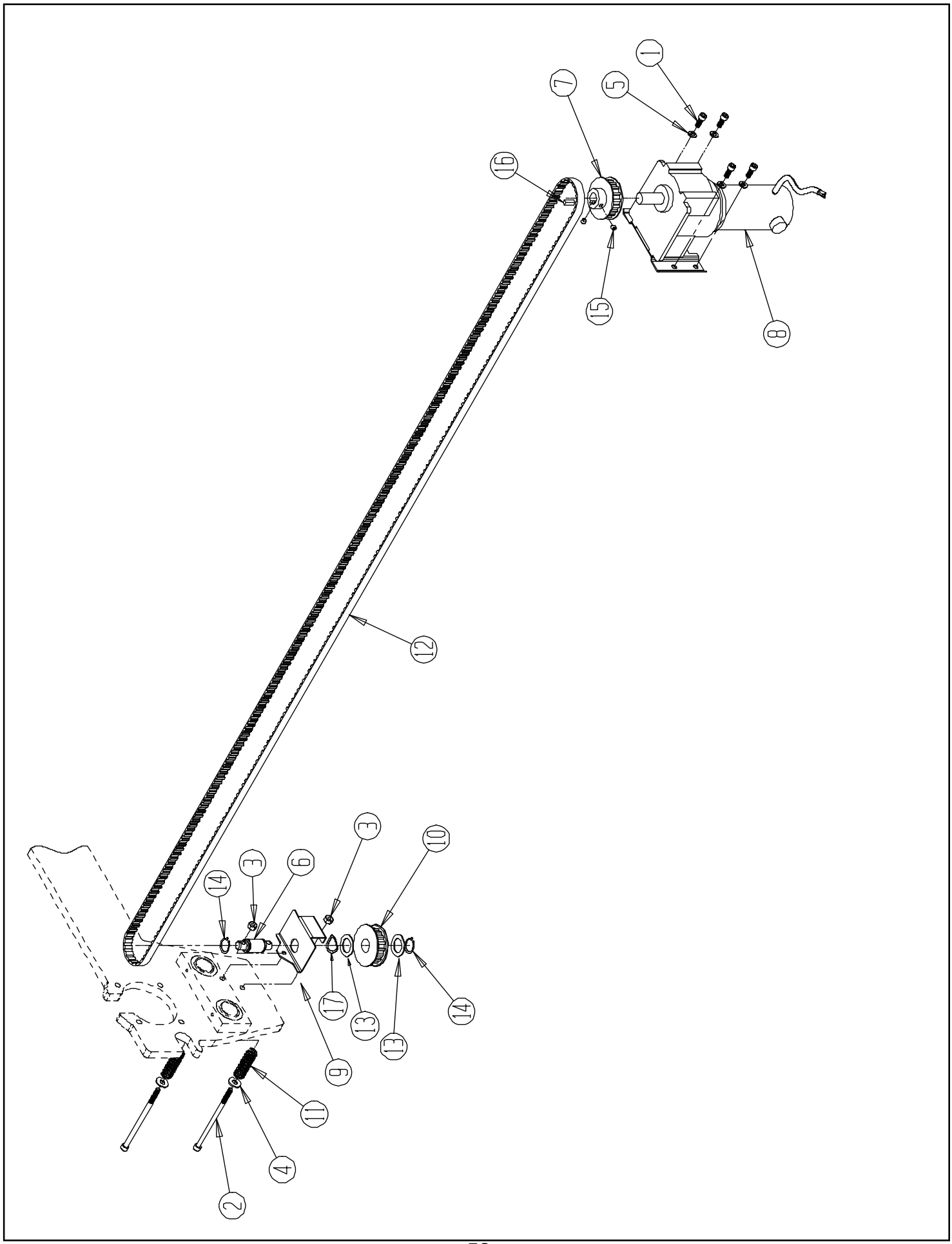
EXPLODED VIEW: PIVOT ARM & GRINDING SHAFT ASSY 2 of 2



PARTS LIST: PIVOT ARM & GRINDING SHAFT ASSY 2 of 2

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	5NTB120311	5-40 X .188 Lg Socket Head Cap Screw
2	5NTB130605	6-32 x 3/8 Flat Head Socket Cap Screw
3	5NTB160411	8-32 x 1/4 Socket Head Cap Screw
4	5NTB190611	10-24 x 3/8 Socket Head Cap Screw
5	5NTB190831	10-24 x 1/2 Socket Head Cap Screw
6	5NTC370820	3/8-16 x 1/2 Cup Point Set Screw
7	5NTJ502000	1/2-13 Hex Jam Nut
8	5NTJ507100	1/2-13 Locknut Full Nylon
9	5NTK161501	#8 Lockwasher Split
10	5NTK191501	#10 Lockwasher Split
11	5NT80428	Washer Conical .53 x 1.13 x .06T
12	5NT09299	1/2-13 x 2.5 Lg Button Head Socket Cap Screw
13	5NT09707	Digital Scale, 6" Mitutoyo #572
14	5NT50095	Mounting Block
15	5NT50283	Gage Mounting Bracket
16	5NT55472	Handwheel 1/2-13 ID
17	5NT50325	Arm Support Pivot
18	5NT50348	Vertical Adjustment Shaft
19	5NT50573	Vertical Adjuster Assembly
20	5NT50591	Cap Assembly
21	5NT80344	Hex Acorn Nut 1/2-13
22	5NT3709042	Ball Bearing Thrust Nice #603-1/4
23	5NT7469149	Nylon Plug 5/16 Diameter
24	5NTK121501	# 5 Split Lockwasher

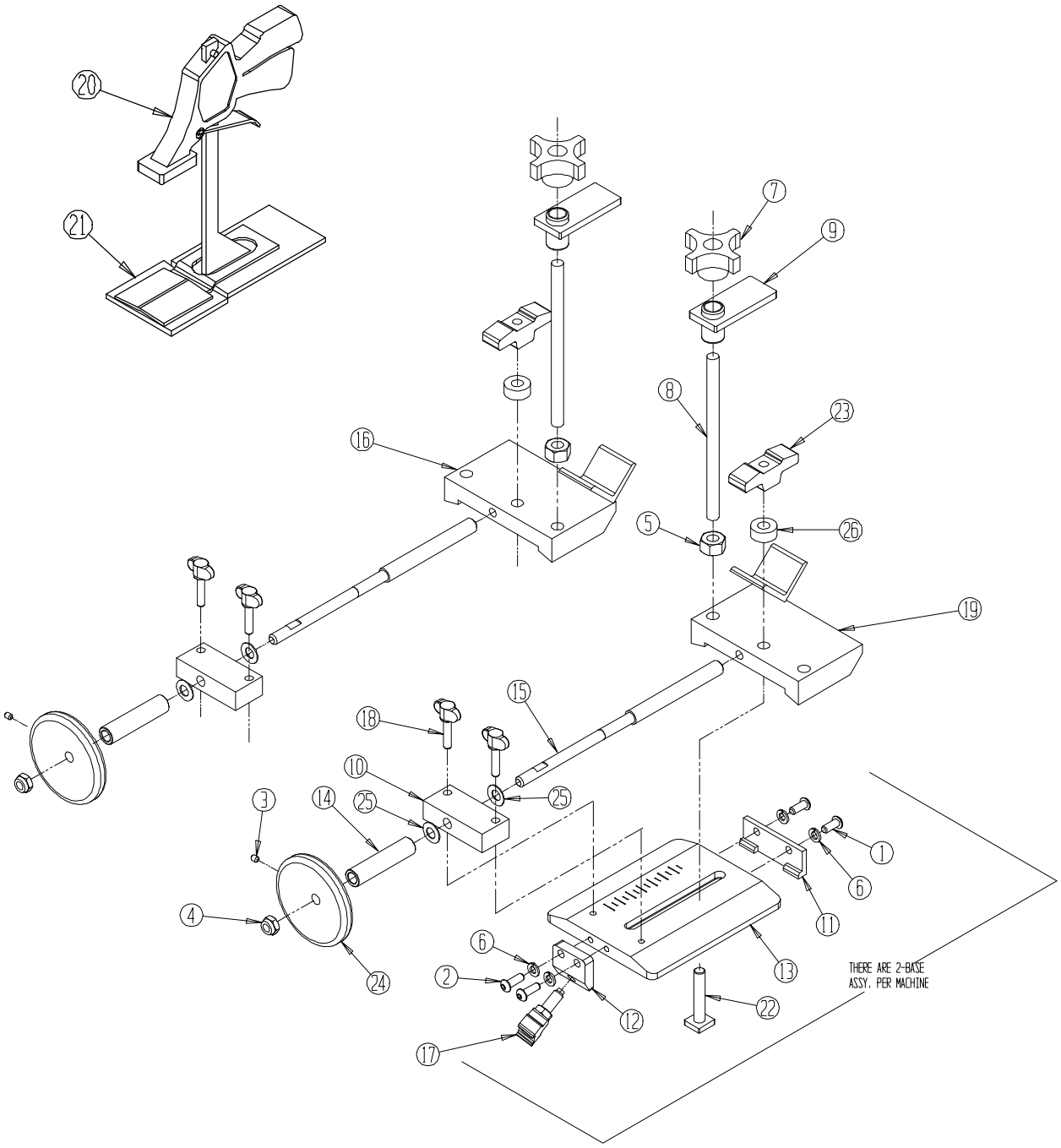
EXPLODED VIEW: TRAVERSE DRIVE ASSEMBLY



PARTS LIST: TRAVERSE DRIVE ASSEMBLY

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	5NTB251011	1/4-20 X 5/8 Socket Head Cap Screw
2	5NTB257211	1/4-20 x 4.5 Socket Head Cap Screw
3	5NTJ257000	1/4-20 Locknut Thin
4	5NTK250001	Flat Washer 1/4
5	5NTK251501	1/4 Lockwasher Split
6	5NT50309	Traverse Pulley Shaft
7	5NT3706056	Cog Pulley Drive
8	5NT6059062	Motor Assembly Trav W16
9	5NT50363	Traverse Pulley Guard
10	5NT55553	Cog Pulley Driven .375 P .50W
11	5NT80353	Die Spring .34 ID x 2.0 Lg
12	5NT80354	Cog Belt
13	5NT80355	Thrust Washer .75 ID x 1.25 OD
14	5NT3709331	Retaining Ring
15	5NTC250460	1/4-28 x 1/4 Socket Head Set Screw
16	5NT80126	3/16 SQ x 1.00 Key
17	5NT3708419	Wave Spring .78 ID x 1.00 OD

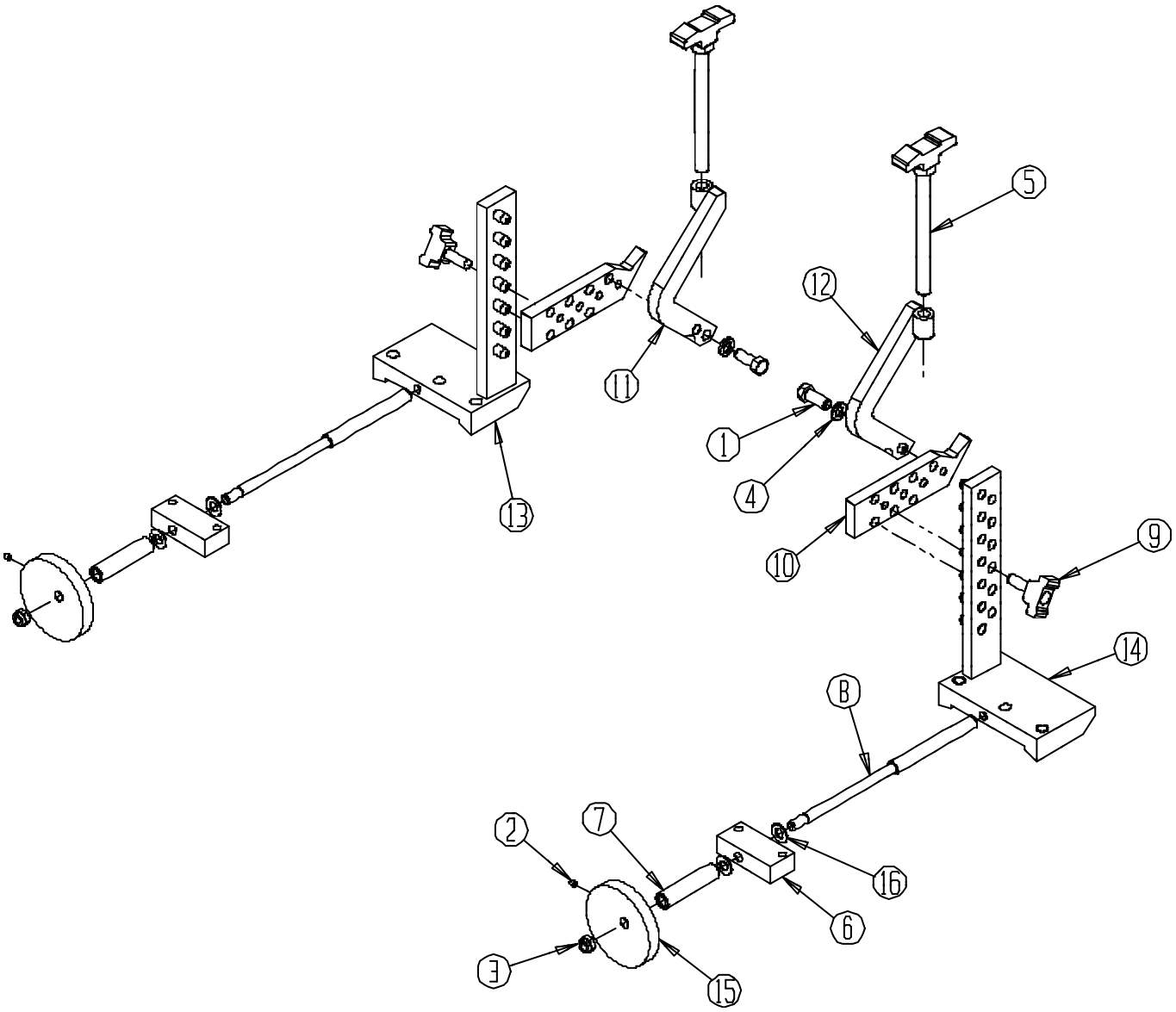
EXPLODED VIEW: MOWER SUPPORT ASSEMBLY



PARTS LIST: MOWER SUPPORT ASSEMBLY

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	5NTB251016	1/4-20 X 5/8 Button Head Cap Screw
2	5NTB251216	1/4-20 x 3/4 Button Head Cap Screw
3	5NTC250420	1/4-20 x 1/4 Cup Point Set Screw
4	5NTJ377000	3/8-16 Locknut Jam Nylon
5	5NTJ502000	1/2-13 Hex Jam Nut
6	5NTK251501	1/4 Lockwasher Split
7	5NT09853	Knob 4 prong 1/2-13 F
8	5NT17119	Threaded Stud 1/2-13 x 65 Lg
9	5NT50242	Roller Clamp Weldment
10	5NT50288	Tooling Block Adjustment
11	5NT50290	Front Clamp Plate
12	5NT50291	Clamp Block
13	5NT55449	Tooling Base Plate
14	5NT55773	Tooling Spacer
15	5NT55774	Acme Shaft L.H. Tooling
16	5NT50568	V Roller Weldment L.H.
17	5NT50570	T-Knob Assembly 3/8-16 x .75 Dog Point
18	5NT80396	Knob Assembly 1/4-20 x 1.0 Lg
19	5NT55506	V Roller Weldment R.H.
20	5NT50254	Rear Roller Clamp Weldment
21	5NT70512	Roller Roller Bracket Weldment
22	5NT80346	Bolt T Slot 3/8-16 x 2.0 Lg
23	5NT3708245	Knob T 235 3/8-16 F
24	5NT3708393	Handwheel 3.50 Diameter
25	5NT3709062	Conical Washer .382 x .75 x .035 T
26	5NT3889045	Spacer .406 ID x .88 OD x .38Long

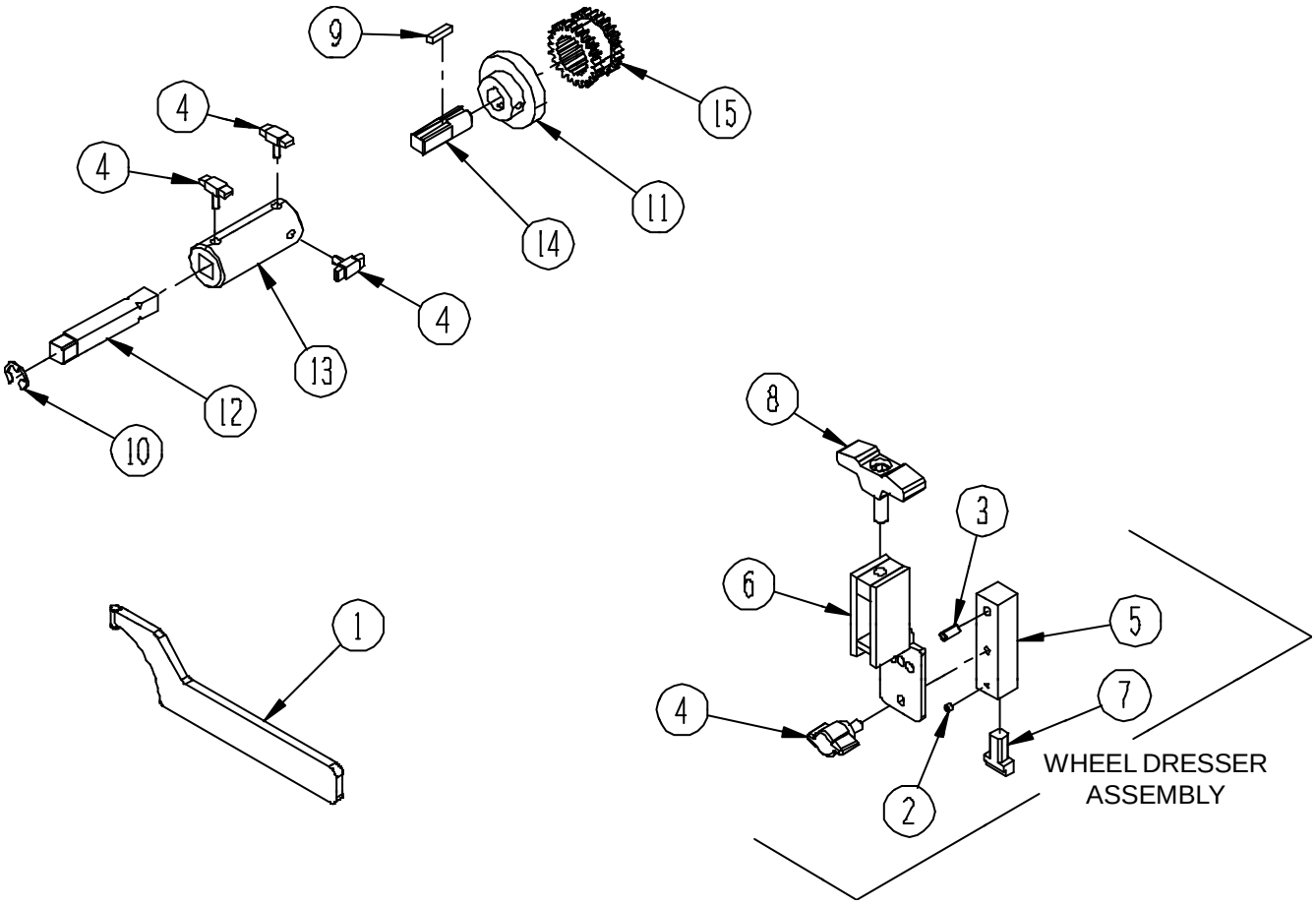
EXPLODED VIEW:VERTICAL MOWER SUPPORT ASSEMBLY



PARTS LIST: VERTICAL MOWER SUPPORT ASSEMBLY

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	5NTB371601	3/8-16 X 1 Hex Head Cap Screw
2	5NTC250420	1/4-20 x 1/4 Cup Point Cap Screw
3	5NTJ377000	3/8-16 Locknut Jam Nylon
4	5NTK371501	3/8 Lockwasher Split
5	5NT17519	Knob T Assembly 1/2-13 x 6.5"
6	5NT50288	Tooling Block Adjustment
7	5NT55773	Tooling Spacer
8	5NT55774	Acme Shaft L.H. Tooling
9	5NT50592	Knob T 3/8-16 x 1.0 Lg
10	5NT55282	Hanger "V"
11	5NT55343	Clamp Weldment Large L.H.
12	5NT55358	Clamp Weldment Large R.H.
13	5NT55511	Tooling Post Assembly L.H.
14	5NT55512	Tooling Post Assembly R.H.
15	5NT3708393	Handwheel 3.50 Dia.
16	5NT3709062	Conical Washer .382 Id x .75 OD x .035 Thick

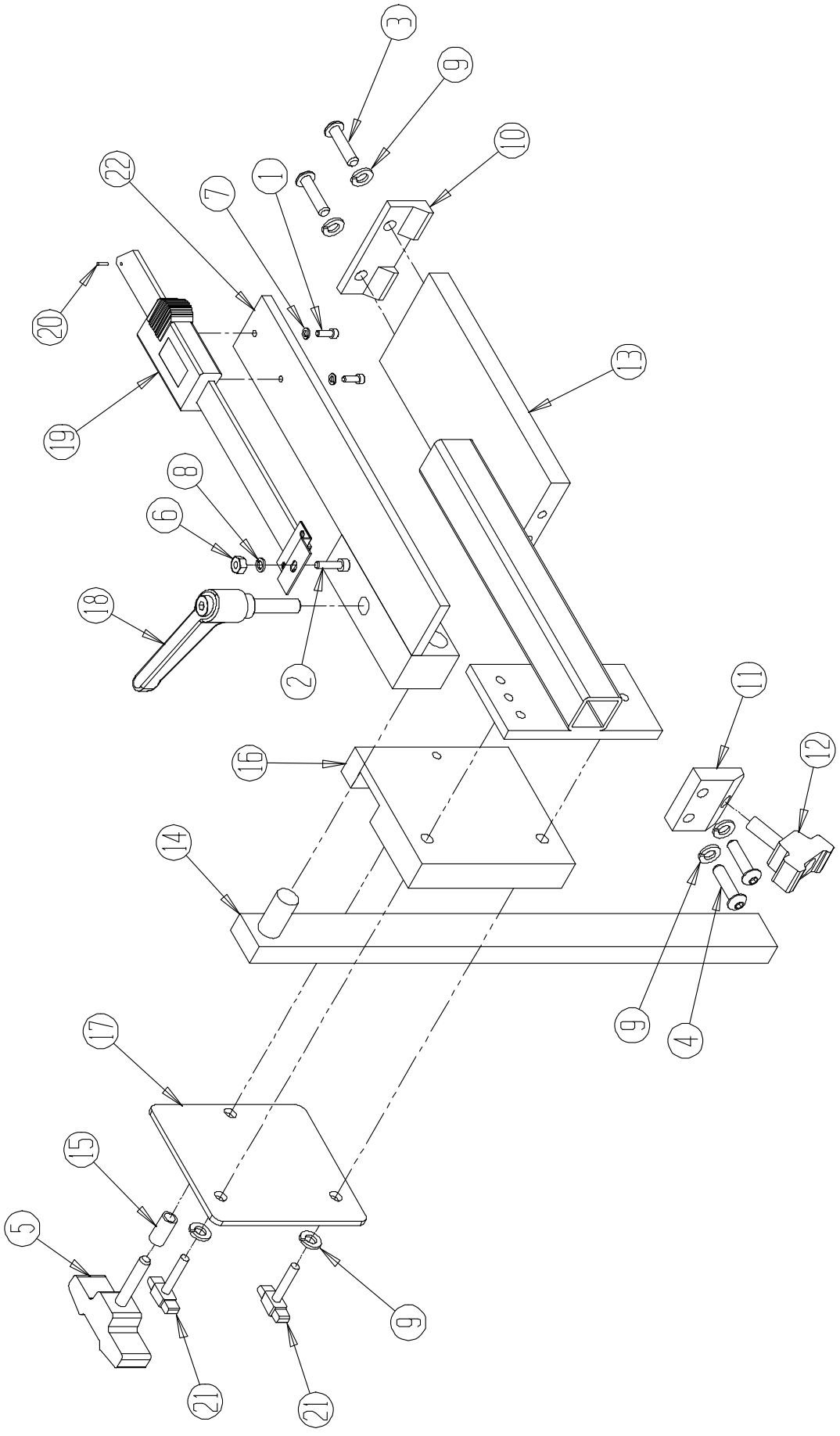
EXPLODED VIEW: CARTON ASSEMBLY



PARTS LIST: CARTON ASSEMBLY

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	5NT50014	Spanner Wrench
2	5NTC190320	#10-24 x 3/16 Socket Head Setscrew
3	5NTH250802	1/4" x 1/2" Roll Pin
4	5NT09394	1/4-20 2-prong Knob
5	5NT55122	Dresser Support Block
6	5NT55461	Dresser Support Weldment
7	5NT3708845	3/4 Wide x 1/4 Thick Diamond Dresser
8	5NT6509588	T-Knob Assembly
9	5NTR000377	Sq Key 3/16 x .75
10	5NT3709073	Retaining Ring
11	5NT3709584	Flange Coupler .625 Bore
12	5NT6009051	Drive Adapter 1/2 sq 3.5 Lg
13	5NT6009052	Adapter
14	5NT6009217	Driver Coupler Adapter
15	5NT3709585	Sleeve Coupler
	5NT55022	Compensation for Taper Chart (Not Shown)

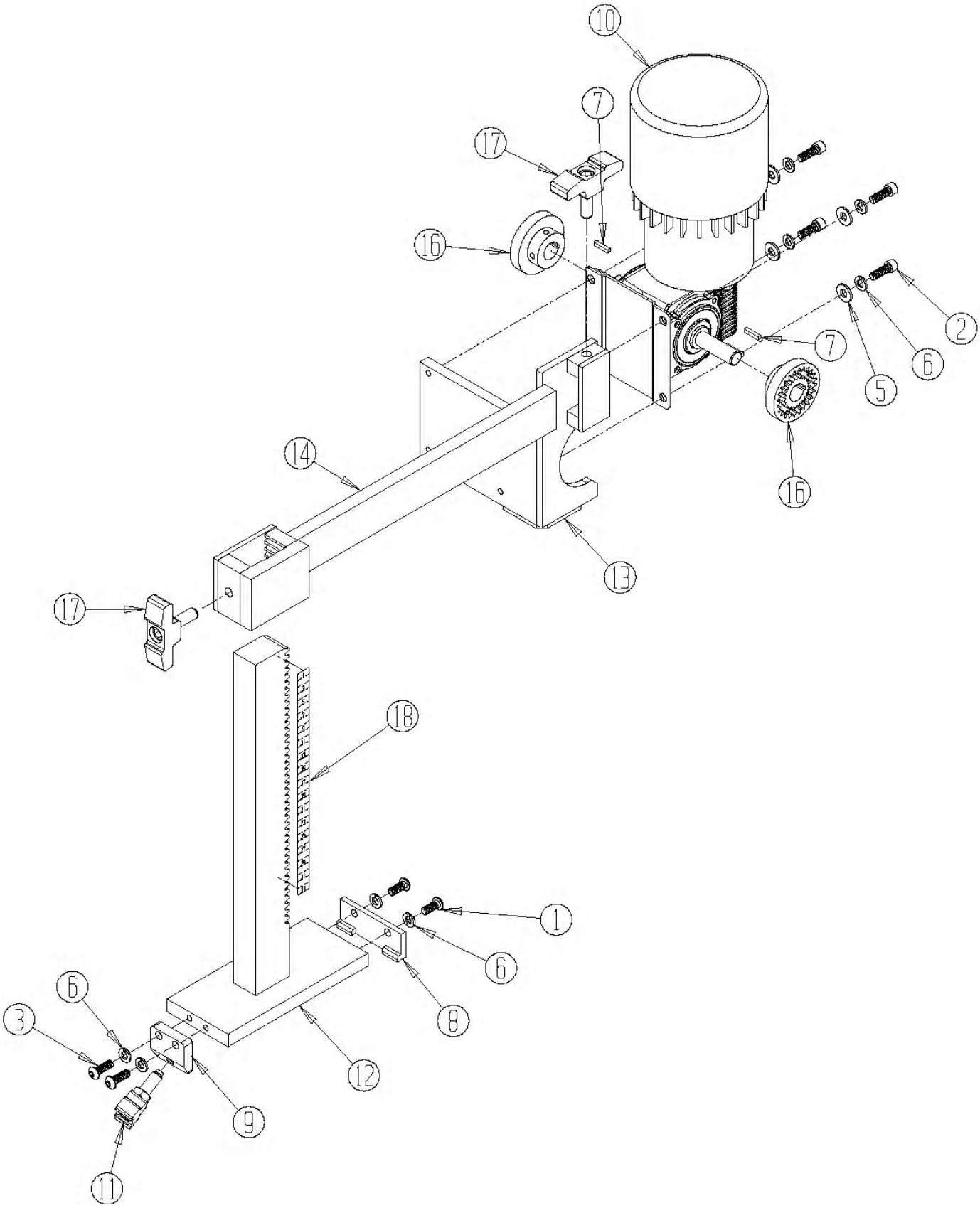
EXPLODED VIEW: ALIGNMENT GAGE ASSEMBLY



PARTS LIST: ALIGNMENT GAGE ASSEMBLY

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	5NTB120611	5-40 x .38 Socket Head Cap Screw
2	5NTB161011	8-32 x 5/8 Socket Head Cap Screw
3	5NTB251016	1/4-20 x 5/8 Button Head Socket Cap Screw
4	5NTB251216	1/4-20 x 3/4 Button Head Socket Cap Screw
5	5NT6609501	Knob Assembly T 1/4-20 x 1.31 Long
6	5NTJ161000	8-32 Hex nut
7	5NTK121501	#5 Lockwasher Split
8	5NTK161501	#8 Lockwasher Split
9	5NTK251501	1/4 Lockwasher Split
10	5NT50290	Front Clamp Plate
11	5NT50291	Clamp Block
12	5NT50570	T-Knob Assembly 3/8-16 x .75 Dog Point
13	5NT50586	Gage Base Weldment
14	5NT50597	Gage Bar Assembly Vertical
15	5NT3529069	Spacer .25 ID x .375 OD x .69 Long
16	5NT6509418	Pivot Plate Machined
17	5NT6509349	Retainer Plate
18	5NT3708094	Adjustable Handle 5/16-18 x 1.25 Long
19	5NT6509359	Digital Gage Machined
20	5NTH060302	Roll Pin .063 D x .188 Long
21	5NT80396	Knob T 1/4-20 x 1.18 Long
22	5NT6329556	Gage Base Weldment

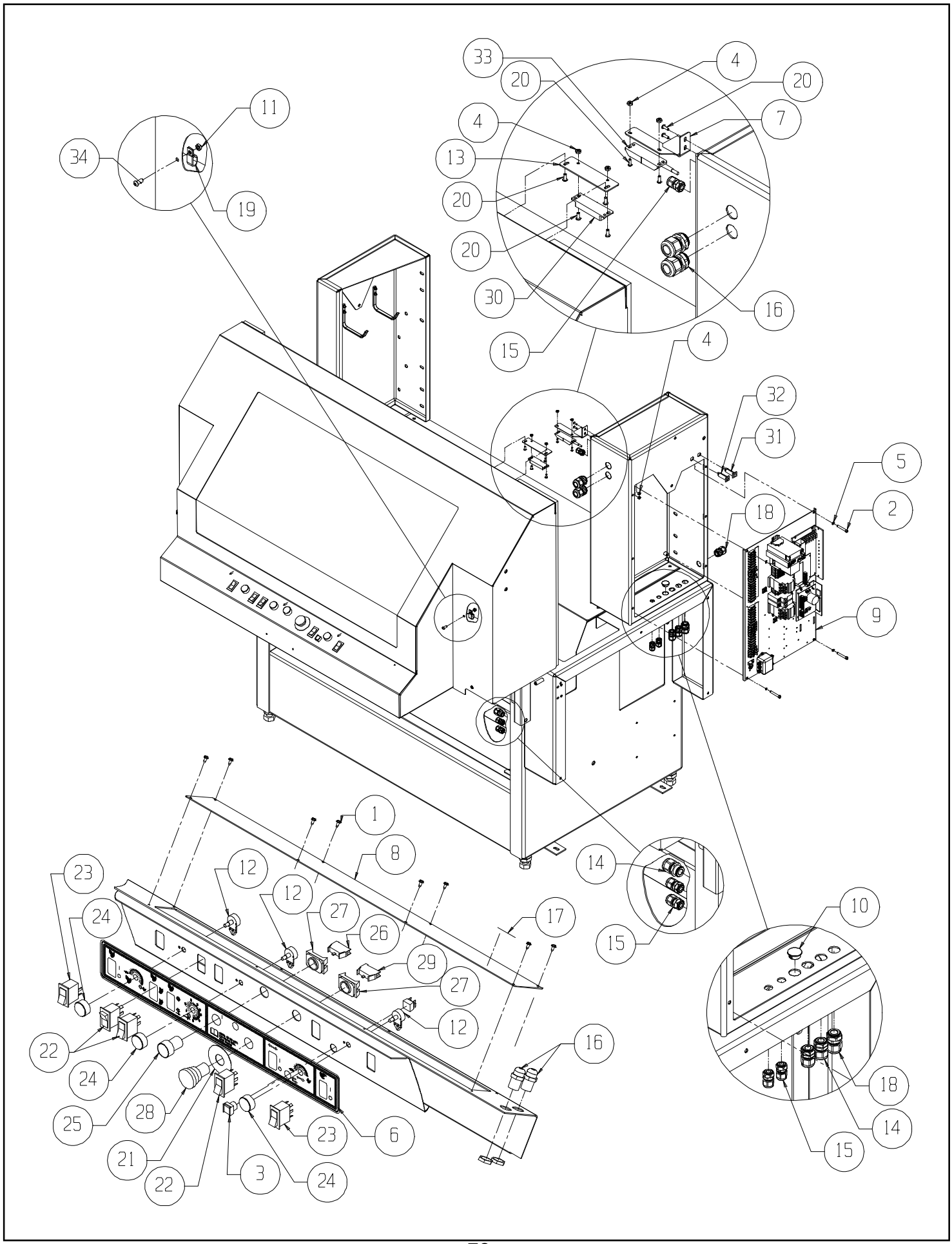
EXPLODED VIEW: SPIN DRIVE ASSEMBLY



PARTS LIST: SPIN DRIVE ASSEMBLY

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	5NTB251016	1/4-20 x 5/8 Button Head Socket Cap Screw
2	5NTB251211	1/4-20 x 3/4 Socket Head Cap Screw
3	5NTB251216	1/4-20 x 3/4 Button Head Socket Cap Screw
5	5NTK250001	Flat Washer 1/4
6	5NTK251501	1/4 Lockwasher Split
7	5NTR000376	Sq Key 1/8 x .75
8	5NT50290	Front Clamp Plate
9	5NT50291	Clamp Block
10	5NT6329160	Motor Spin Assembly Spin
	5NT3707623	DC Motor Brush (for Service - not shown)
11	5NT50570	T-Knob Assembly 3/8-16 x .75 Dog Point
12	5NT50585	Spin Mount Weldment Vertical
13	5NT55437	Spin Mount Weldment
14	5NT55442	Spin Arm Weldment Horizontal
16	5NT3709586	Flange Coupler .50 Bore
17	5NT6509588	Knob Assembly T 2.5 3/8-16 x 1.00L
18	5NT6329072	Decal - Scale

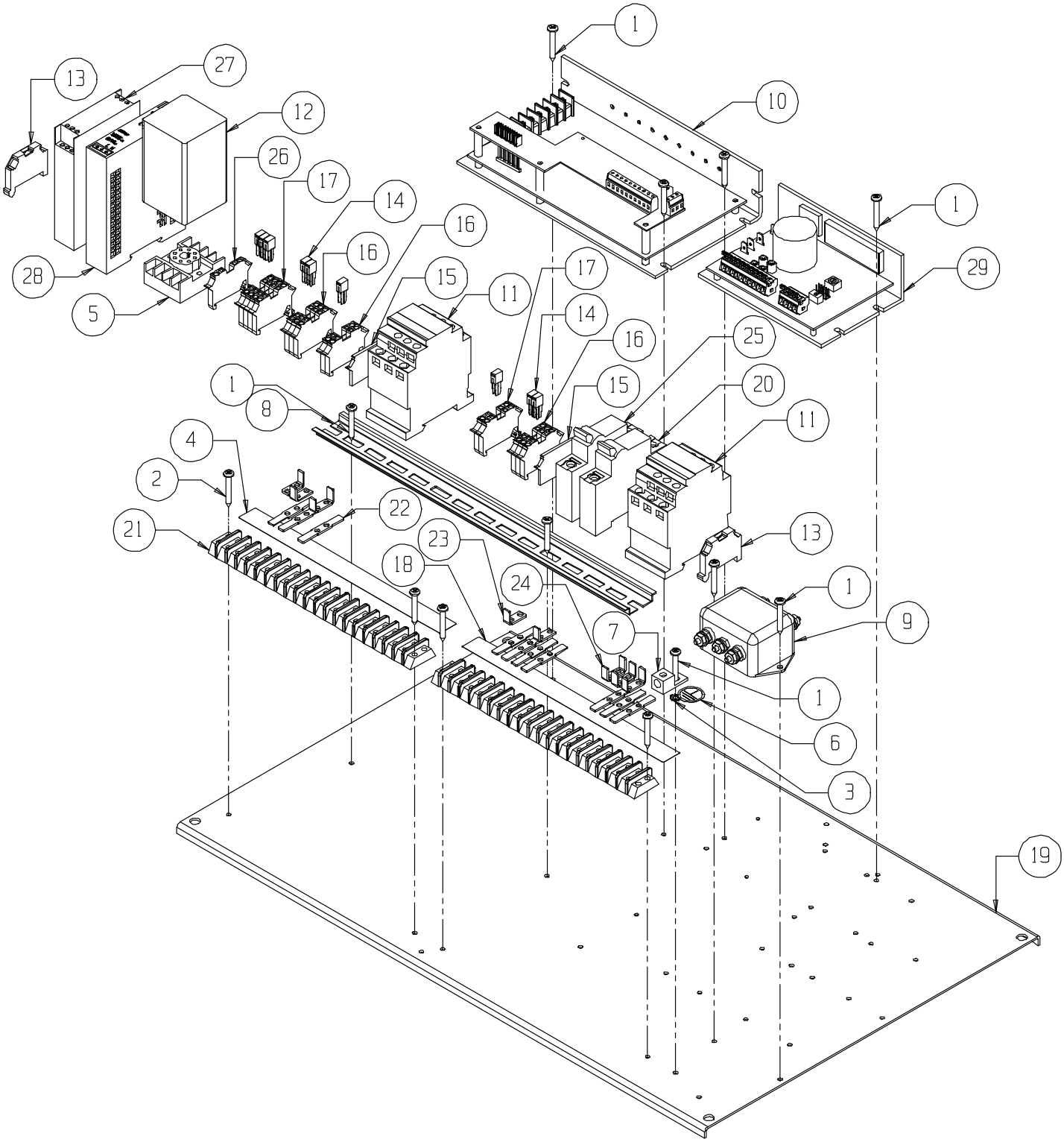
EXPLODED VIEW: CONTROLS ASSEMBLY



PARTS LIST: CONTROLS ASSEMBLY

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	5NTD160608	Thrd Cutting Screw 8-32 x 3/8 "F Type"
2	5NTD250800	Thrd Cutting Screw 1/4-20 x 1/2 "F Type" Hex Hd
3	5NT3707826	Push Button Square Green
4	5NTJ167000	8-32 Nylon Insert Lock Nut Jam
5	5NTR000536	Lockwasher 1/4" Internal Teeth
6	5NT55711	Control Panel Decal
7	5NT155504	Door Safety Switch Bracket Weldment
8	5NT55422	Control Service Panel
9	(see next page)	Control Panel Sub-Assembly
10	5NT3707595	Hole Plug - 7/8
11	5NTJ257000	1/4-20 Locknut - Jam
12	5NT80419	Potentiometer Assembly - 10K
13	5NT55476	Door Switch Bracket
14	5NT3707009	Strain Relief - Liquid Tight .27-.47 Wire Dia.
15	5NT3707029	Strain Relief - Liquid Tight .19-.30 Wire Dia.
16	5NT3707658	Strain Relief - Liquid Tight .54-.71 Wire Dia.
17		Electrical Warning Decal (see page 7 Operators Manual)
18	5NT3707093	Strain Relief - Liquid Tight .55-.71 Wire Dia.
19	5NT3707715	Cord Clamp - Double
20	5NT3708820	8-32 x .50 Button Head Safety Screw
21	5NT3707342	Yellow E-Stop Ring
22	5NT3707367	Rocker Switch
23	5NT3707429	Rocker Switch
24	5NT3707446	Potentiometer Knob
25	5NT3707564	Green Pushbutton
26	5NT3707565	Contact Block - Normally Open
27	5NT3707566	Switch Mounting Latch
28	5NT3707567	Red Stop Push/Pull Pushbutton
29	5NT3707568	Contact Block - Normally Closed
30	5NT3707647	Door Safety Coded Magnet
31	5NT3707761	Circuit Breaker - 20 Amp
32	5NT3707653	Circuit Breaker - 4 Amp
33	5NT6059021	Door Safety Switch Assembly - Front
34	5NTB251016	1/4-20 x 5/8 Button Head Socket Cap Screw
	5NT27169	Traverse Proximity Switch Cord- Right Hand (Not Shown)
	5NT6059078	Traverse Proximity Switch Cord - Left Hand (Not Shown)
	5NT3707601	Proximity Sensor
	5NT55780	Control Panel Cord (Not Shown)
	5NT6329078	Main Power Cord (Not Shown)
	5NT3708378	Foam Strip - .25 Thick {Sold by the foot]

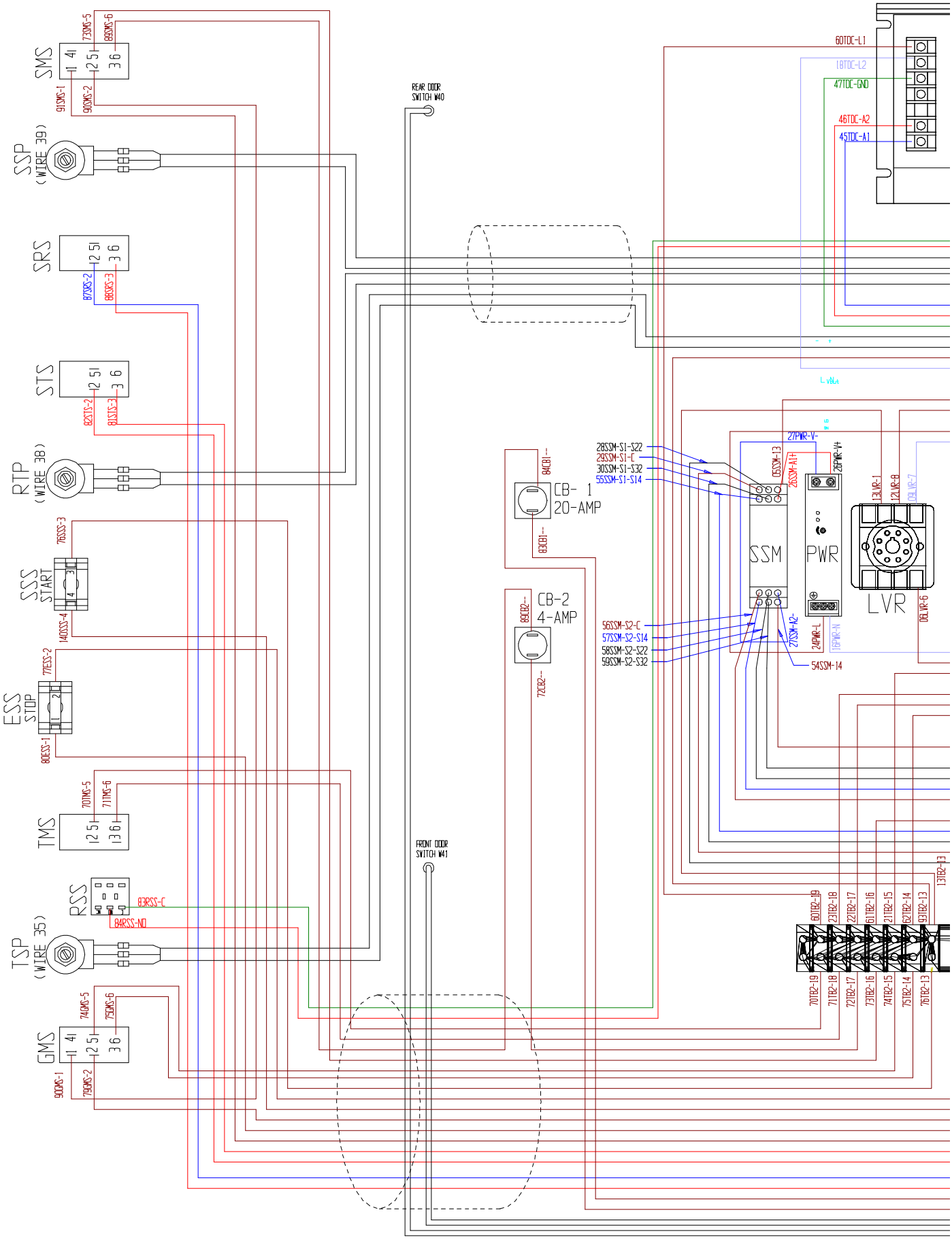
EXPLODED VIEW: ELECTRIC PANEL SUB ASSEMBLY

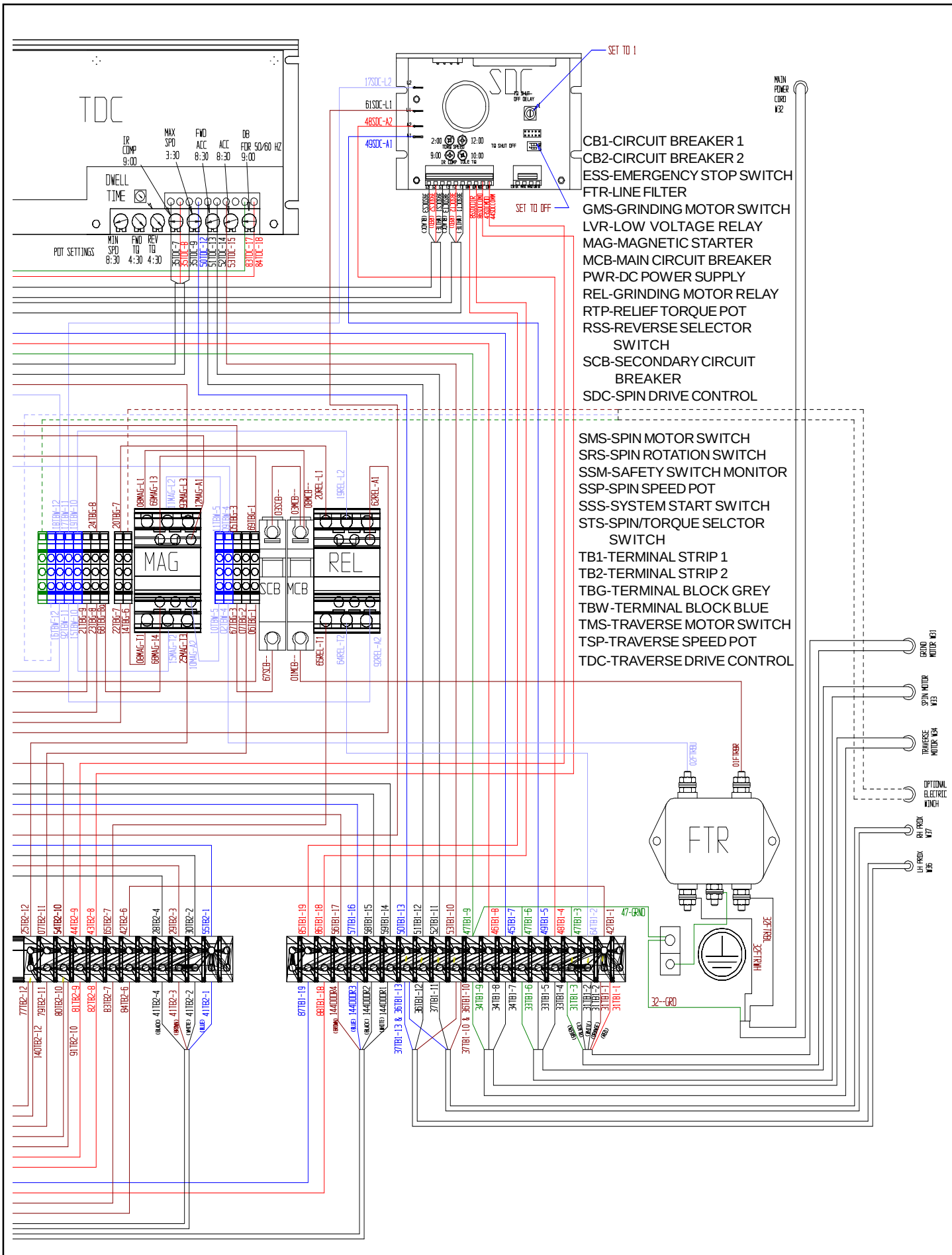


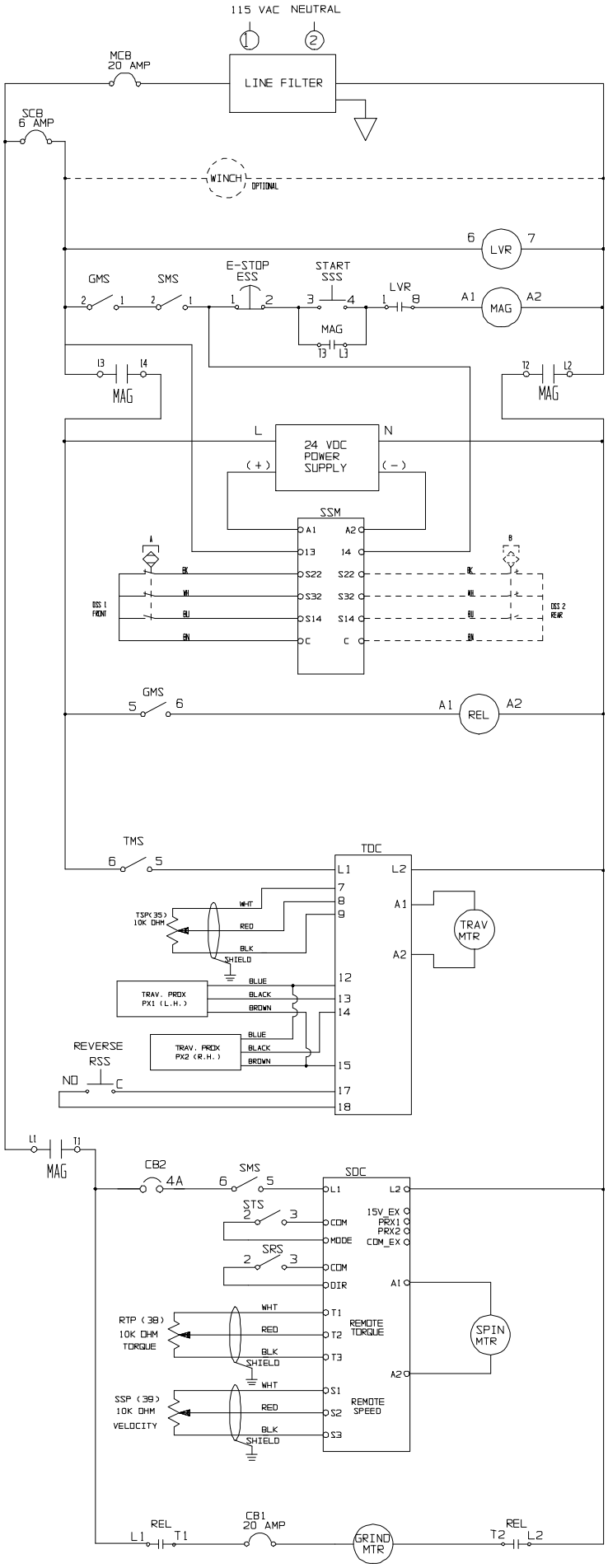
PARTS LIST: ELECTRIC PANEL SUB ASSEMBLY

DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1	5NTD160666	No. 8 x 3/8 Pan Head Self Tapping Screw
2	5NTD161266	No. 8 x 3/4 Pan Head Self Tapping Screw
3	5NTR000480	Lockwasher No. 8 External Teeth
4	5NT3706079	19 Pole Decal (TB2)
5	5NT3707073	8 Pin Socket
6	5NT3707163	Primary Ground Decal
7	5NT3707164	Primary Ground Lug
8	5NT3707378	Din Rail - 14" Long
9	5NT3707764	Power Line Filter
10	5NT3707850	Traverse Control Board
11	5NT3707556	Magnetic Starter 1 HP
12	5NT3707688	Voltage Sensor Relay
13	5NT3707625	Terminal Block End Stop
14	5NT3707626	Terminal Block Jumper
15	5NT3707627	Terminal Block End Plate
16	5NT3707628	2 Conductor Geey Terminal Block
17	5NT3707629	2 Conductor Blue Terminal Block
18	5NT3706078	19 Pole Decal (TB1)
19	5NT6009270	Electrical Panel
20	5NT80259	Circuit Breaker - 20 Amp
21	5NT3707778	Terminal Strip - 2 Row 19 Pole
22	5NT3707707	Terminal Strip Double Flat Spade
23	5NT3707709	Terminal Strip Single 90° Spade
24	5NT3707708	Terminal Strip Double 90° Spade
25	5NT3707779	6-amp Circuit Breaker
26	5NT3707624	Ground Terminal Block
27	5NT3707328	Door Safety Switch Monitor
28	5NT3707333	Power Supply 24 VDC 0.3 Amp
29	5NT3707830	Spin Control Board
	5NT3707224	Cable Tie Mount (Not Shown)
	5NT3707225	Cable Tie 6.5" x .18 Wide (Not Shown)
	5NT3707631	Terminal Block Tag 1-10 (Not Shown)
	5NT3707632	Terminal Block Tag 11-20 (Not Shown)

WIRING DIAGRAM




CB1-CIRCUIT BREAKER 1
CB2-CIRCUIT BREAKER 2
ESS-EMERGENCY STOP SWITCH
FTR-LINE FILTER
GMS-GRINDING MOTOR SWITCH
LVR-LOW VOLTAGE RELAY
MAG-MAGNETIC STARTER
MCB-MAIN CIRCUIT BREAKER
PWR-DC POWER SUPPLY
REL-GRINDING MOTOR RELAY
RTP-RELIEF TORQUE POT
RSS-REVERSE SELECTOR SWITCH
SCB-SECONDARY CIRCUIT BREAKER
SDC-SPIN DRIVE CONTROL
SMS-SPIN MOTOR SWITCH
SRS-SPIN ROTATION SWITCH
SSM-SAFETY SWITCH MONITOR
SSP-SPIN SPEED POT
SSS-SYSTEM START SWITCH
STS-SPIN/TORQUE SELCTOR SWITCH
TB1-TERMINAL STRIP 1
TB2-TERMINAL STRIP 2
TBG-TERMINAL BLOCK GREY
TBW-TERMINAL BLOCK BLUE
TMS-TRAVERSE MOTOR SWITCH
TSP-TRAVERSE SPEED POT
TDC-TRAVERSE DRIVE CONTROL
TDC
SDC
MAG
REL
SCB
MCB
FTR
SET TO 1
SET TO OFF
MAIN POWER CORD W32
GRIND MOTOR W31
SPIN MOTOR W33
TRAVERSE MOTOR W34
OPTIONAL ELECTRIC WINCH
RH PROX W37
LH PROX W36
47--GRND
32--GRND



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FRONTIER

Manual del operador

NÚMERO DE SERIE: DESDE 1XFRG55XPD0000025 -

RECTIFICADORA DE SEGADORA DE CARRETE DE GIRO / ALIVIO

RG5500

FRONTIER™

(REV. 5/8/2013)

LISTA DE COMPROBACIÓN DE PREPARACIÓN / INSTALACIÓN DEL DISTRIBUIDOR

Rectificadora de segadora de carrete de giro/alivio Frontier RG5500

ESTA LISTA DE COMPROBACIÓN DEBE PERMANECER EN EL MANUAL DEL USUARIO

El distribuidor tiene la responsabilidad de realizar los procedimientos que se enumeran a continuación, y luego, revisar la lista de comprobación con el cliente en el momento de la entrega o venta de este equipo. La capacitación sobre la instalación cubre las funciones operativas básicas del equipo. Para garantizar una capacitación apropiada, establecemos como requisito que su distribuidor de John Deere revise los puntos a continuación. Marque para asegurarse de comprender los puntos a continuación antes de completar la capacitación sobre la instalación:

- ☐ 1. El equipo está completamente montado.
- ☐ 2. Todas las protecciones están en su lugar y en buenas condiciones.
- ☐ 3. Todas las calcomanías están en su lugar y son legibles. (Ver páginas).
- ☐ 4. Se encuentra en buenas condiciones generales (es decir, pintura, soldaduras, instalaciones eléctricas).
- ☐ 5. Verifique que haya suficiente suministro eléctrico para poner la máquina en funcionamiento.
- ☐ 6. Revise los manuales del operador, montaje y servicio, y cualquier material de capacitación adicional que tenga a disposición.
- ☐ 7. Revise la posición adecuada del carrete.
- ☐ 8. Explique la utilización del mecanismo de alivio de la rectificadora de carrete.
- ☐ 9. Revise la posición del interruptor de proximidad longitudinal.
- ☐ 10. Explique la utilización del mecanismo de alivio de la rectificadora de carrete.
- ☐ 11. Explique la velocidad de giro de la rectificadora de carrete vs. la calidad.
- ☐ 12. Converse acerca del gráfico de configuración de la rectificadora de carrete que se encuentra en el manual.
- ☐ 13. Revise el mantenimiento general.

Firma del distribuidor _____

Firma del comprador _____

Seguridad

MENSAJE DE SEGURIDAD IMPORTANTE PARA LOS PROPIETARIOS/OPERADORES DE LAS RECTIFICADORAS DE CARRETE

La seguridad es una de las preocupaciones principales para el diseño, la fabricación, la venta y la operación de las rectificadoras de carrete. Como fabricantes de rectificadoras de carrete, deseamos confirmarles a ustedes, nuestros clientes, nuestra preocupación por la seguridad. También deseamos recordarles las reglas simples, básicas y de sentido común acerca de la seguridad cuando utilicen la rectificadora de carrete. No seguir estas reglas puede resultar en lesiones graves para el operador o las personas cercanas al área, e incluso la muerte.

Es esencial que toda persona involucrada en el montaje, la operación, el transporte, el mantenimiento y el almacenamiento de este equipo sea consciente y se preocupe por la seguridad, sea prudente y cuente con la capacitación adecuada sobre seguridad. Siempre utilice la protección adecuada, como lo especifica el fabricante.

Nuestras máquinas de producción actuales incluyen, como equipamiento estándar, protectores o protecciones para la rueda abrasiva, señales de seguridad y un manual del operador. Nunca pase por alto o ponga en funcionamiento la máquina sin alguno de los protectores o alguno de los dispositivos de seguridad.

Lea y comprenda completamente todas las prácticas de seguridad que se especifican en las páginas 4 y 5 de este manual. Toda persona que trabaje con las rectificadoras de carrete debe comprender y seguir todas las reglas de seguridad.

Antes de poner en funcionamiento la rectificadora de carrete, un operador debe leer y comprender toda la información en el manual del usuario y en las señales de seguridad que aparecen adjuntas al producto. Una persona que no haya leído o comprendido el manual del usuario y las señales de seguridad no está calificada para poner en funcionamiento la unidad. A menudo, ocurren accidentes en máquinas que son utilizadas por una persona que no leyó el manual del usuario y no se familiarizó con el equipo. Si no cuenta con un manual del usuario o con las señales de producción actualizadas, póngase en contacto con el fabricante o con su distribuidor de inmediato.

Las rectificadoras de carrete están diseñadas para ser operadas por una sola persona. Nunca ponga en funcionamiento la rectificadora cuando alguien esté cerca de alguna parte de la rectificadora o esté en contacto con esta. Asegúrese de que nadie más, lo que incluye cualquier persona cercana al área, esté cerca de usted cuando ponga en funcionamiento este producto.

Seguir estas reglas de seguridad simples y básicas, así como también otras especificadas en el manual del usuario y en las señales de seguridad del producto, ayudará a minimizar la posibilidad de accidentes y aumentará su productividad al utilizar este producto. Tenga la precaución y asegúrese de que toda persona que ponga en funcionamiento la rectificadora sepa y comprenda que es una máquina muy poderosa y que, de ser utilizada indebidamente, puede causar lesiones graves e incluso la muerte. La responsabilidad final sobre la seguridad recae en el operador de esta máquina.

PARA EL DISTRIBUIDOR:

El montaje y la instalación adecuada de este producto son responsabilidad del distribuidor de John Deere. Lea las instrucciones del manual y las reglas de seguridad. Asegúrese de que se hayan realizado todos los puntos de la Lista de comprobación de preparación del Manual del usuario antes de entregar el equipo al propietario.

PARA EL PROPIETARIO:

Lea este manual antes de poner en funcionamiento su equipo Frontier. Conserve este manual al alcance de su mano para tener una referencia rápida. Solicite a todos los operadores que lean este manual con detenimiento y se familiaricen con todos los ajustes y procedimientos operativos antes de intentar poner en funcionamiento el equipo. Puede obtener los manuales de repuesto de su distribuidor.

El equipo que adquirió ha sido diseñado y fabricado cuidadosamente para brindar un uso confiable y satisfactorio. Como todos los productos mecánicos, requerirá limpieza y mantenimiento. Lubrique la unidad como se especifica. Tenga en cuenta toda la información de seguridad que incluye este manual y las calcomanías de seguridad sobre el equipo.

Para obtener servicio, su distribuidor autorizado John Deere cuenta con mecánicos capacitados, piezas de repuesto Frontier genuinas, y las herramientas y los equipos necesarios para dar respuesta a todas sus necesidades de servicio.

Utilice solo piezas de servicio Frontier genuinas.

INSTRUCCIONES DE SEGURIDAD

Los Símbolos de seguridad están incluidos en este manual para que esté alerta de los posibles ***peligros de seguridad***. Siempre que vea estos símbolos, siga sus instrucciones.

El ***Símbolo de advertencia*** identifica instrucciones o procedimientos especiales que, si no se siguen correctamente, pueden resultar en lesiones personales.

El ***Símbolo de precaución*** identifica instrucciones o procedimientos especiales que, si no se obedecen estrictamente, pueden resultar en daños al equipo e incluso su destrucción.

1. **CONSERVE LOS PROTECTORES EN SU LUGAR** y en buenas condiciones de operación.
2. **QUITE LAS LLAVES Y OTRAS HERRAMIENTAS.**
3. **CONSERVE EL ÁREA DE TRABAJO LIMPIA.**
4. **NO UTILICE EN ENTORNOS PELIGROSOS.** No utilice la rectificadora en zonas húmedas o mojadas. La máquina es solo para uso en interiores. Conserve el área de trabajo bien iluminada.
5. **TODOS LOS VISITANTES DEBEN MANTENER DISTANCIA.** Todos los visitantes deben mantenerse a una distancia segura del área de trabajo.
6. **ACONDICIONE EL ÁREA DE TRABAJO PARA QUE SEA A PRUEBA DE NIÑOS** con candados e interruptores principales.
7. **NO FUERCE LA RECTIFICADORA.** Realizará un trabajo mejor y más seguro si se utiliza según las especificaciones de este manual.
8. **UTILICE LA HERRAMIENTA CORRECTA.** No fuerce la rectificadora ni ninguna pieza adjunta a que realicen un trabajo para el que no fueron diseñadas.
9. **UTILICE LA VESTIMENTA ADECUADA**. No vista indumentaria suelta, guantes, corbatas ni alhajas que puedan atascarse en las piezas en movimiento. Se recomienda el uso de calzado antideslizante. Utilice una redecilla protectora del cabello para contener el cabello largo.
10. **SIEMPRE UTILICE GAFAS DE SEGURIDAD.**
11. **ASEGURE SU TRABAJO.** Asegúrese de que la unidad de corte esté trabada en forma segura con las abrazaderas que se brindan antes de poner en funcionamiento.
12. **NO ADOPTE POSTURAS FORZADAS.** Mantenga una posición firme y equilibrada en todo momento.
13. **REALICE EL MANTENIMIENTO DE LA RECTIFICADORA CON CUIDADO.** Siga las instrucciones del Manual de servicio para la lubricación y el mantenimiento preventivos.
14. **DESCONECTE LA ALIMENTACIÓN ELÉCTRICA ANTES DE REALIZAR EL SERVICIO,** o cuando cambie la rueda abrasiva.
15. **REDUZCA EL RIESGO DE UN ARRANQUE INVOLUNTARIO.** Asegúrese de que todos los interruptores estén en **OFF (Apagado)** antes de conectar la rectificadora.
16. **UTILICE LOS ACCESORIOS RECOMENDADOS**. Consulte el manual para obtener información acerca de los accesorios recomendados. Utilizar accesorios inadecuados puede aumentar el riesgo de lesiones personales.
17. **VERIFIQUE LAS PIEZAS DAÑADAS.** Un protector u otra pieza que estén dañados o no cumplan con la función que deben realizar deben repararse o reemplazarse adecuadamente.
18. **CONOZCA SU EQUIPO.** Lea este manual con atención. Conozca sus aplicaciones y limitaciones, así también como los peligros potenciales específicos.
19. **CONSERVE TODAS LAS CALCOMANÍAS DE SEGURIDAD LIMPIAS Y LEGIBLES.** Si las calcomanías están dañadas o ilegibles por alguna razón, reemplácelas inmediatamente. Tome como referencia las ilustraciones de las piezas de repuesto que contiene el Manual de servicio para ubicarlas adecuadamente y obtener los números de pieza de las calcomanías de seguridad.
20. **NO PONGA EN FUNCIONAMIENTO LA RECTIFICADORA BAJO LA INFLUENCIA DE DROGAS, ALCOHOL O MEDICAMENTOS.**

INSTRUCCIONES DE SEGURIDAD

UN USO INADECUADO DE LA RUEDA ABRASIVA PUEDE CAUSAR DAÑO O UNA LESIÓN GRAVE.

El rectificado es una operación segura si se siguen las pocas reglas enumeradas a continuación. Estas reglas se basan en el material incluido en el Código de seguridad ANSI B7.1 para el "Uso, cuidado y protección de ruedas abrasivas". Para su seguridad, le sugerimos que aproveche los beneficios de la experiencia de otros y siga estas reglas.

LO QUE DEBE HACER

1. Siempre **MANIPULE Y ALMACENE** las ruedas con cuidado.
2. **INSPECCIONE VISUALMENTE** todas las ruedas en busca de daños posibles antes de montarlas.
3. **VERIFIQUE LA VELOCIDAD DE LA MÁQUINA** en comparación con la velocidad operativa de seguridad máxima establecida, marcada en la rueda.
4. **CONTROLE LAS BRIDAS DE MONTAJE** a fin de que tengan el mismo diámetro y que sea el correcto.
5. **UTILICE SECADORES DE MONTAJE** cuando se le suministren las ruedas.
6. **ASEGÚRESE de que el PORTAPIEZAS** esté ajustado adecuadamente.
7. **SIEMPRE** utilice una **CUBIERTA PROTECTORA DE SEGURIDAD** que cubra por lo menos la mitad de la rueda abrasiva.
8. **PERMITA** que las **RUEDAS RECIÉN MONTADAS** giren a la velocidad operativa, con el protector colocado en su lugar, durante por lo menos un minuto antes de comenzar a rectificar.
9. **SIEMPRE USE GAFAS DE SEGURIDAD** o algún tipo de protección ocular cuando rectifique.

LO QUE NO DEBE HACER

1. **NO** utilice una rueda agrietada ni una que **SE HAYA CAÍDO** o que esté dañada.
2. **NO FUERCE** una rueda a la máquina **NI ALTERE** el tamaño del orificio de montaje. Si la rueda no encaja en la máquina, busque una que sí.
3. **NUNCA EXCEDA LA VELOCIDAD OPERATIVA MÁXIMA** establecida para la rueda.
4. **NO** utilice bridas de montaje en las que las superficies de rodamiento **NO ESTÉN LIMPIAS, PLANAS Y LIBRES DE QUEMADURAS.**
5. **NO AJUSTE EXCESIVAMENTE** la tuerca de montaje**.**
6. **NO** rectifique con el **LATERAL DE LA RUEDA** (consulte el Código de seguridad B7.2 para conocer las excepciones).
7. **NO** encienda la máquina hasta que el **PROTECTOR DE LA RUEDA ESTÉ EN SU LUGAR.**
8. **NO ATASQUE** la pieza de trabajo en la rueda.
9. **NO SE PARE DIRECTAMENTE DELANTE** de la rueda abrasiva cada vez que se encienda una rectificadora.
10. **NO FUERCE EL RECTIFICADO** de modo que el motor disminuya notablemente la velocidad o la pieza de trabajo se caliente.

EVITE INHALAR EL POLVO generado por las operaciones de rectificado y corte. La exposición al polvo puede causar problemas respiratorios. Utilice respiradores, gafas de seguridad o máscaras, e indumentaria protectora aprobados por el NIOSH (Instituto nacional para la seguridad y salud ocupacional) y la MSHA (Administración para la seguridad y salud de los mineros). Propicie una ventilación adecuada para eliminar el polvo o para mantener el nivel de polvo por debajo del Valor mínimo de polvo perjudicial según lo clasifica la OSHA (Administración para la seguridad y salud ocupacional).

ÍNDICE DE CONTENIDOS

Esta máquina fue diseñada <u>SOLO</u> para rectificar el carrete de los tipos de unidades segadoras de carrete. **Cualquier uso diferente a este puede causar lesiones personales y anular la garantía.**

Para asegurar la calidad y seguridad de su máquina y para mantener la garantía, usted DEBE utilizar piezas de repuesto del fabricante del equipo original y encargar cualquier trabajo de reparación a un profesional calificado.

TODOS los operadores de este equipo deben estar debidamente capacitados ANTES de poner en funcionamiento el equipo.

No utilice aire comprimido para limpiar de la máquina el polvo generado por el rectificado. Este polvo puede causar lesiones personales, así como también daños a la rectificadora. La máquina es solo para uso en interiores. No utilice una hidrolavadora para limpiar la máquina.

ADVERTENCIA
PREAJUSTE DE FÁBRICA. LA LUZ VERDE INTERMITENTE INDICA BAJO VOLTAJE. LA LUZ ROJA INTERMITENTE INDICA QUE LA RECTIFICADORA RECIBE ALTO VOLTAJE

Relé de bajo voltaje

La rectificadora está equipada con un relé de alto-bajo voltaje cuyo ajuste predeterminado de fábrica es 100-140 V CA. Si la línea de suministro eléctrico no entrega 100-140 V CA bajo carga, el relé se abrirá y desenganchará el arrancador. Si esto sucede, la línea de suministro eléctrico es incorrecta y debe corregirse antes de continuar trabajando con la rectificadora.

ÍNDICE DE CONTENIDOS

Instrucciones de seguridad ..... Página 4 - 7
Mantenimiento diario ..... Página 6
Conozca su rectificadora ..... Página 8 - 14
Instrucciones de operación ..... Página 15 - 27
Gráfico de configuración del carrete ..... Página 28

MANTENIMIENTO DIARIO POR EL OPERADOR

Diariamente, limpie la máquina con un trapo.
Diariamente, quite toda la arenilla del eje de rectificado, de los ejes longitudinales y del área de la barra de mecanizado.
Diariamente, inspeccione la máquina en busca de sujetadores o componentes sueltos.
Póngase en contacto con el Departamento de mantenimiento de su compañía si encuentra piezas dañadas o defectuosas.

NO UTILICE AIRE COMPRIMIDO PARA LIMPIAR EL POLVO DE LA RECTIFICADORA.

INSTRUCCIONES DE SEGURIDAD

PRESTE ESPECIAL ATENCIÓN A LAS CALCOMANÍAS DE ADVERTENCIA QUE APARECEN A CONTINUACIÓN Y QUE ESTÁN UBICADAS EN LA RECTIFICADORA. CONSULTE EL MANUAL DE SERVICIO PARA OBTENER LOS NÚMEROS DE PIEZA DE REPUESTO.

RPM DE LA RUEDA ABRASIVA

⚠ CAUTION ⚠ ATENCIÓN

To Avoid Injury:
-Do not exceed grinding wheel maximum operating speed of 3600 revolutions per minute.

Para evitar lesiones:
-No exceda la velocidad de funcionamiento máxima, de 3600 revoluciones por minuto, de la rueda rectificadora.

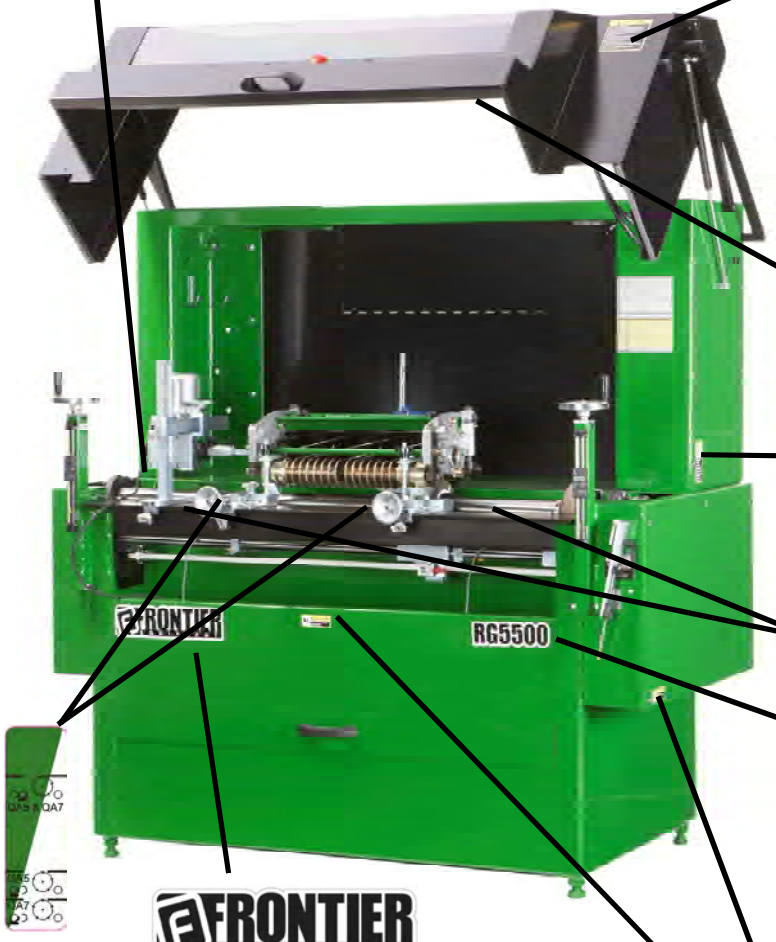
INFORMACIÓN GENERAL

⚠ CAUTION

To Avoid Injury:
-Read Operator's Manual before operating, servicing, or repairing equipment. Follow all safety rules and instructions. (Manuals are available from your selling dealer.)
-Keep bystanders away from equipment during operation. Keep all shields in place and in good condition.
-Wear all of the appropriate safety equipment specified in the Operator's Manual while operating this machine.
-Always make sure machine is off and all machine movement has stopped before leaving machine.
-Never allow children or untrained persons to operate equipment.

⚠ ATENCIÓN

Para evitar lesiones:
-Lea el manual del operador antes de la puesta en funcionamiento, del mantenimiento o de la reparación del equipo. Siga todas las reglas e instrucciones de seguridad. (Los manuales se encuentran disponibles a través de su distribuidor).
-Mantenga al personal ajeno alejado del equipo durante el funcionamiento. Mantenga todos los protectores en su lugar y en buenas condiciones.
-Durante el funcionamiento de esta máquina, utilice todos los equipos de seguridad correspondientes especificados en el manual del operador.
-Asegúrese siempre de que la máquina se encuentre apagada y haya dejado de moverse antes de abandonarla.
-Nunca permita que un niño o una persona sin capacitación pongan la máquina en funcionamiento.



ELECTRICIDAD

⚠ CAUTION

To Avoid Injury:
-Make sure all electrical power to this machine has been disconnected before removing any electrical panels or covers for maintenance.

⚠ ATENCIÓN

Para evitar lesiones:
-Asegúrese de que se haya desconectado por completo el suministro eléctrico de esta máquina antes de retirar los paneles eléctricos o las cubiertas para el mantenimiento.

RG5500

FRONTIER EQUIPMENT

OBJETOS CORTANTES

⚠CAUTION
To Avoid Injury:
-Keep hands away from rotating objects

⚠ATENCIÓN
Para evitar lesiones:
-Mantenga las manos alejadas de los objetos giratorios

CALCOMANÍA DE HOJA
(ENGLISH - ESPAÑOL)
5NT155301

CONOZCA SU RECTIFICADORA

ESPECIFICACIONES

Interruptores longitudinales	Interruptores de proximidad sin contacto de estado sólido.
Ancho total	71" (181 cm)
Altura total	69" (175 cm) con la tapa cerrada, 87" (221 cm) con la tapa abierta
Profundidad total	42" (107 cm) sin la estación de trabajo, 79" (201 cm) con la estación de trabajo opcional
Peso	1450 lbs. (658 kg), peso de embarque 1650 lbs. (748 kg)
Estructura de la base	Base de acero reforzado soldado para trabajo pesado y de precisión
Rieles del carro	Acero endurecido con rectificado de precisión - 1,000 diám. (25,4 mm)
Motor del cabezal de rectificado	Motor de 1 HP CA, 3450 RPM
Motor de rotación	Motor de CC de velocidad variable y refrigeración por ventilador de 0,20 HP
Nivel de sonido	Más de 75 dBA, menos de 95 dBA
Desplazamiento automático	Accionada por correa con un sistema de abrazaderas de fácil enganche
Sistema de control	*Motor de la rectificadora de seguridad e interruptores de corte en la tapa del impulsor de rotación. *Impulsor de rotación reversible para una velocidad de giro variable o para funciones de alivio de momento de torsión variable. *Control longitudinal de velocidad variable.
Opciones:	*Kit de cabrestante y brazo manual, kit de cabrestante y brazo eléctrico o plataforma de elevación.

CONOZCA SU RECTIFICADORA (Continuación)

IDENTIFICACIÓN DE LOS COMPONENTES DEL PANEL DE CONTROL

Revise las descripciones de los componentes del panel de control a continuación antes de proceder con las instrucciones

PULSADOR DE INICIO DEL SISTEMA

El pulsador verde es el interruptor de arranque del sistema. Al presionarlo, pondrá en funcionamiento el arrancador magnético y suministrará electricidad al panel de control. El arrancador magnético no se pondrá en funcionamiento a menos que se tire del pulsador de parada de emergencia y los interruptores del motor de la rectificadora y del motor de rotación estén apagados.

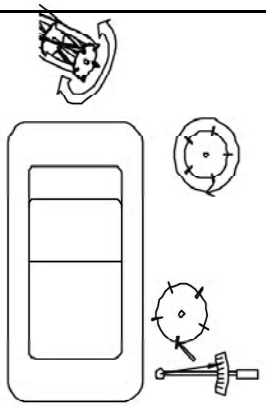
INTERRUPTOR DEL SELECTOR DE LA RECTIFICADORA

Velocidad de rotación variable

El interruptor debe estar levantado para realizar las operaciones de rectificado de giro.

Alivio de momento de torsión variable

El interruptor debe estar bajo para realizar las operaciones de rectificado de alivio.

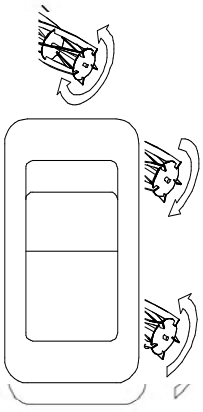


INTERRUPTOR DE GIRO DEL IMPULSOR DE ROTACIÓN

Marcha/Apagado/Contramarcha

Este interruptor invierte la dirección del motor del impulsor de rotación.

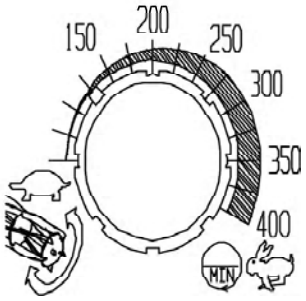
IMPORTANTE: Puesto que el motor del impulsor de rotación puede volcarse sobre el brazo de ajuste horizontal, es posible que la dirección sea la opuesta a la que muestra la calcomanía.



RPM DEL INDICADOR DEL POTENCIÓMETRO DE VELOCIDAD DE ROTACIÓN

Ajuste la velocidad de rotación del carrete cuando el interruptor de selección de rectificado esté configurado en velocidad de rotación variable.

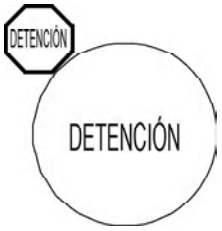
LOS PROTECTORES DE LAS TAPAS DEBEN ESTAR CERRADOS PARA QUE EL IMPULSOR DE ROTACIÓN PUEDA OPERAR.



CONOZCA SU RECTIFICADORA (Continuación)

BOTÓN DE PARADA DE EMERGENCIA DE EMPUJE/TIRO

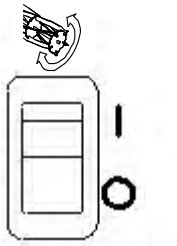
Presione para detener todo suministro eléctrico a las funciones del panel de control. Esto detiene el suministro eléctrico a todos los motores, lo que incluye el motor de la rectificadora, el motor longitudinal, el motor de rotación, etc. Para reanudar el suministro eléctrico, tire del botón y presione el botón Start (Inicio).



INTERRUPTOR DE ENCENDIDO/APAGADO DEL MOTOR DE ROTACIÓN

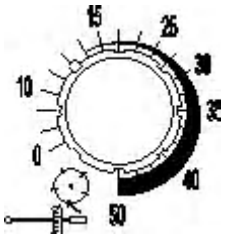
Enciende y apaga el motor de rotación.

LOS PROTECTORES DE LAS TAPAS DEBEN ESTAR CERRADOS PARA QUE EL MOTOR DE LA RECTIFICADORA PUEDA OPERAR.



INDICADOR DE MOMENTO DE TORSIÓN DE ALIVIO

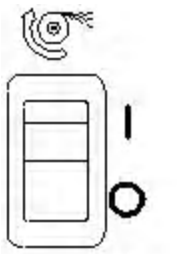
Ajusta el momento de torsión del motor del impulsor de rotación (la torsión que sostiene la lámina del carrete al dedo de retención de alivio) cuando el interruptor del selector de rectificado se configura en alivio de momento de torsión variable.



INTERRUPTOR DE ENCENDIDO/APAGADO DEL MOTOR DE LA RUEDA ABRASIVA

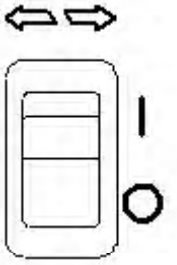
Enciende y apaga el motor de la rueda abrasiva.

LOS PROTECTORES DE LAS TAPAS DEBEN ESTAR CERRADOS PARA QUE EL MOTOR DE LA RECTIFICADORA PUEDA OPERAR.



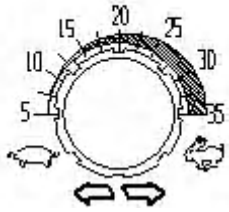
INTERRUPTOR DEL MOTOR LONGITUDINAL

ENCIENDE/APAGA el motor del impulsor longitudinal.



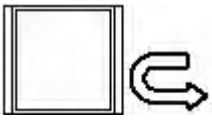
INDICADOR DEL POTENCIÓMETRO DE VELOCIDAD LONGITUDINAL - FT/MIN

Ajuste la velocidad de los movimientos hacia la izquierda y hacia la derecha de la rueda abrasiva.



INTERRUPTOR DEL MOTOR DE CONTRAMARCHA

Invierte la dirección del cabezal de rectificado si se presiona mientras el cabezal está en movimiento.

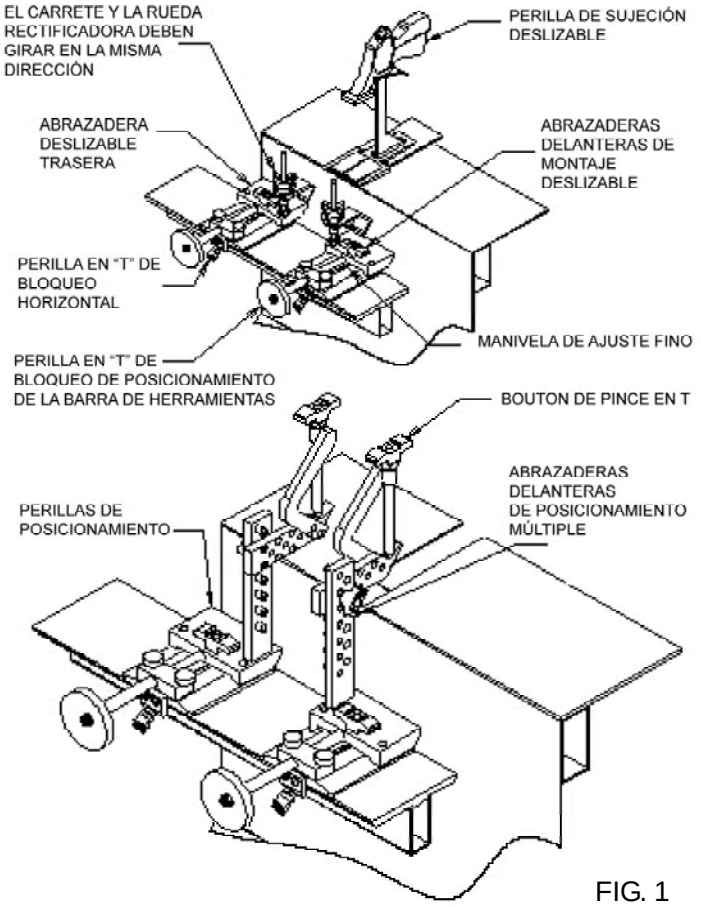


MONTAJE FRONTAL Y POSTERIOR DE LA SEGADORA

La unidad segadora debe ubicarse en la máquina con el rodillo posterior sobre la mesa y el rodillo frontal sostenido en el mecanizado frontal. El mecanizado puede moverse de lado a lado a lo largo de la barra de mecanizado, de manera que pueda ubicarse tan alejado como sea necesario para que puedan respetarse todos los anchos del carrete. Las calcomanías de la barra de mecanizado facilitan el posicionamiento del mecanizado sobre el ancho del carrete. Para mover el mecanizado, suelte la perilla ubicada en el frente de la base de mecanizado y deslícelo a lo largo de la barra de mecanizado. El mecanizado debe ubicarse tan cerca del marco como sea posible al dejar el máximo espacio para utilizar el calibre de posición (el calibre se explicará en la sección de alineación). La posición horizontal se obtiene al utilizar la manivela ubicada en la parte frontal del mecanizado. Si debe rectificar una unidad segadora de ajuste rápido (QA7 o QA5), utilice las calcomanías ubicadas en el mecanizado para posicionar rápidamente el carrete. Hay dos posiciones para cada carrete según cómo se monte el rodillo frontal. Vea la Fig. 2

Si utiliza soportes para todas las posiciones, las posiciones vertical y horizontal pueden ajustarse al aflojar las perillas ubicadas en el lateral del mecanizado y mover a un nuevo conjunto de clavijas.

Verifique que el carrete esté ubicado adecuadamente para la rueda de rotación y la rueda de alivio al comprobar los límites de carrera; ambas ruedas deberán contar con un margen para soltarse en ambos laterales. La verificación durante la configuración eliminará la necesidad de ajustes y alineaciones importantes cuando pase del rectificado por rotación al rectificado de alivio. Cuando la segadora esté en su lugar, bloquee la posición al ajustar todas las perillas. Levante el rodillo posterior sobre el soporte angulado y sujete el rodillo firmemente al apretar la manivela de la abrazadera.


EL CARRETE Y LA RUEDA RECTIFICADORA DEBEN GIRAR EN LA MISMA DIRECCIÓN
PERILLA DE SUJECIÓN DESLIZABLE
ABRAZADERA DESLIZABLE TRASERA
ABRAZADERAS DELANTERAS DE MONTAJE DESLIZABLE
PERILLA EN "T" DE BLOQUEO HORIZONTAL
MANIVELA DE AJUSTE FINO
PERILLA EN "T" DE BLOQUEO DE POSICIONAMIENTO DE LA BARRA DE HERRAMIENTAS
BOUTON DE PINCE EN T
ABRAZADERAS DELANTERAS DE POSICIONAMIENTO MÚLTIPLE
PERILLAS DE POSICIONAMIENTO
FIG. 1

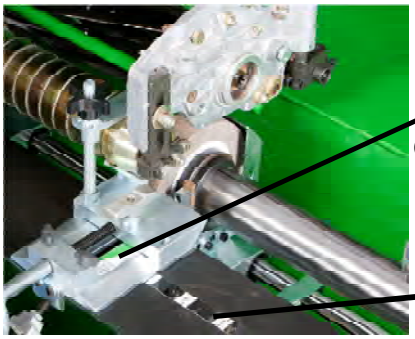


FIG. 2

POSICIÓN DEL CARRETE

El carrete debe posicionarse de manera que esté en la posición de ángulo de la una en punto o a 30° en referencia a la rueda abrasiva. Vea la Fig. 3. Si se utilizan los soportes para todas las posiciones, intente ubicar la unidad de manera que la parte inferior del carrete esté alejada entre 1,50" y 2,00" (38 y 51 mm) de la mesa. Cuando utilice el mecanizado del tipo de montaje por rodillo, intente mantener la posición de la una en punto y compruebe que haya un margen entre el carrete y la rueda abrasiva. Verifique que se pueda lograr el ángulo de alivio adecuado con esta configuración y realice cualquier ajuste de ser necesario.

Si rectifica un carrete QA7 o QA5 con montajes por rodillo, utilice las calcomanías ubicadas en el mecanizado para obtener la posición óptima para rectificar el carrete. Vea la Fig. 2

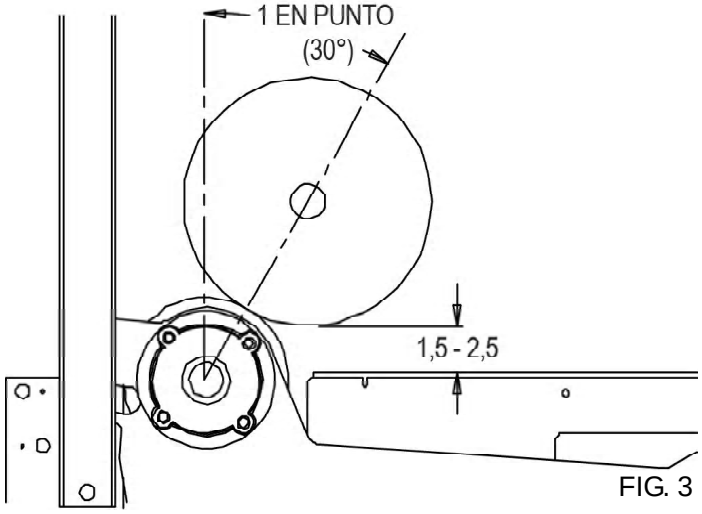


FIG. 3

ACOPLE Y DESACOPLE LONGITUDINAL

La correa que impulsa el alivio y los centros de giro hacia la derecha y hacia la izquierda puede acoplarse y desacoplarse al volcar la abrazadera ubicada en la parte inferior de los montajes del cabezal de rectificado. Al mover la manecilla hacia la izquierda, acoplará la correa, y al moverla a la derecha, desacoplará la correa. La punta puede ajustarse de ser necesario para aumentar o disminuir la tensión sobre la correa. Consulte los ajustes en el manual de servicio para obtener más detalles.

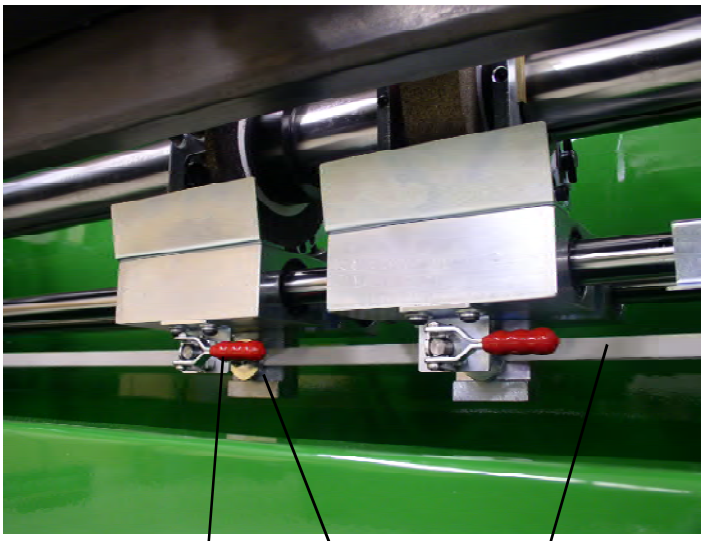


FIG. 4

LA PUNTA DE LA ABRAZADERA DE LA CORREA SE AJUSTA EN LA FÁBRICA PARA PERMITIR QUE LA CORREA SE DESLICE SI EL CENTRO SE PONE EN CONTACTO CON ALGO. SE DEBE TENER PRECAUCIÓN AL AJUSTAR LA PUNTA. SI LA ABRAZADERA SE AJUSTA EN EXCESO, LA CORREA NO SE DESLIZARÁ, LO QUE PUEDE CAUSAR DAÑO A LA MÁQUINA O AL CARRETE.

INTERRUPTORES DE PROXIMIDAD LONGITUDINALES

Dos interruptores de proximidad móviles determinan los límites izquierdo y derecho del montaje del cabezal de rectificado. Se enciende un LED sobre el interruptor cuando el cabezal de rectificado se acerca al cabezal del interruptor de proximidad. Los sensores se montan en los soportes de proximidad ubicados en los ejes longitudinales. Los soportes pueden desplazarse fácilmente a lo largo de los ejes para realizar ajustes en los límites de recorrido en forma rápida y fácil. Cuando cambie del modo de giro al modo de alivio, deberán levantarse los soportes de los ejes y volver a colocarse sobre los ejes en la posición adecuada.

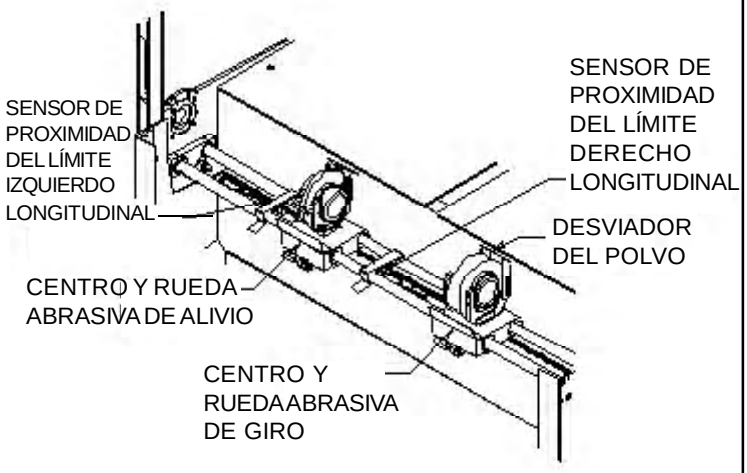

SENSOR DE PROXIMIDAD DEL LÍMITE IZQUIERDO LONGITUDINAL
SENSOR DE PROXIMIDAD DEL LÍMITE DERECHO LONGITUDINAL
DESVIADOR DEL POLVO
CENTRO Y RUEDA ABRASIVA DE ALIVIO
CENTRO Y RUEDA ABRASIVA DE GIRO

FIG. 5

CABEZAL DE RECTIFICADO DE GIRO/ALIVIO

La rectificadora está equipada con ruedas abrasivas de giro y alivio separadas. Cuando se realiza la configuración adecuadamente, solo se debe posicionar y alinear el carrete una vez para ambos ciclos. La rueda de giro está ubicada en el lateral derecho de la máquina y es más ancha que la rueda de alivio. Mueva la rueda que no se utiliza al extremo tanto como sea posible de manera de darle la mayor cantidad de espacio para configurar y operar la máquina. Los sensores de proximidad deben moverse para que la rueda que se utilice esté entre los dos sensores. Asegúrese de que la rueda que no esté en uso no esté enganchada a la correa impulsora.

CONOZCA SU RECTIFICADORA (Continuación)

AJUSTE DEL ÁNGULO DE ALIVIO

Se modificará el ángulo de alivio al rotar el sistema de dedos de retención alrededor de la rueda abrasiva. Al soltar la manivela del retén grande, se puede rotar el sistema de dedos de retención para lograr los ángulos de fábrica o cualquier ángulo que seleccione. Vea la Fig. 6. Al rotar el dedo de retención hacia adelante, el ángulo de alivio disminuirá, y al rotarlo hacia atrás, el ángulo aumentará. Vuelva a ajustar la manivela del retén cuando el ajuste sea correcto.

AJUSTE DEL DIÁMETRO DE LA RUEDA DE ALIVIO

Como la rueda se desgasta, el sistema de dedos de retención deberá ajustarse para mantener un espacio correcto entre el dedo de retención fijo y la rueda. Para mover el sistema de dedos de retención, afloje la manivela del retén pequeño. Vea la Fig. 6. El espacio entre el dedo de retención fijo y la rueda abrasiva debe estar entre las 0,06" (1,5 mm) y 0,18" (4,6 mm) según la cantidad de alivio existente en el carrete. Vuelva a ajustar la manivela del retén luego de realizar el ajuste.

AJUSTES DE LOS DEDOS DE RETENCIÓN ÍNDICE

El montaje de alivio incluye dos dedos de retención. Vea la Fig. 6. El dedo de retención de alivio fijo sostiene la lámina en posición durante el proceso de rectificado de alivio. El dedo de retención índice móvil de parada se mueve del lateral del dedo de retención de alivio (lado posterior) de la lámina del carrete cuando se traslada de derecha a izquierda, al lateral de la rueda abrasiva (lado frontal) de la lámina del carrete cuando se traslada de izquierda a derecha. El dedo de retención índice permite que la rectificadora indexe a la próxima lámina en forma automática durante el rectificado de alivio. Un ajuste incorrecto del montaje de los dedos de retención de alivio puede dar como resultado un rectificado defectuoso, o posiblemente, dañar el carrete o la máquina.

La perilla de posición de parada del dedo de retención índice ajusta donde se detiene el dedo de retención índice cuando se indexa la lámina del carrete. Vea la Fig. 6. Una posición correcta de este punto de parada es crucial para permitir que la lámina del carrete se traslade sin obstáculos desde el dedo de retención índice al dedo de retención fijo.

¡IMPORTANTE! Luego de ajustar la perilla de posición de parada del dedo de retención índice, debe haber un margen de 1/32" (0,8 mm) entre el dedo de retención índice y la lámina del carrete cuando empuje el dedo de retención índice. Esto permitirá que el dedo de retención de alivio fijo guíe la lámina del carrete durante el ciclo de rectificado de alivio. La lámina del carrete nunca debe recorrer el dedo de retención índice durante el rectificado.

Se puede ajustar la altura de la clavija de parada índice. Se debe ajustar para agarrar la lámina del carrete y que aun deje suficiente margen al centrador del carrete luego de rectificar el alivio a la profundidad necesaria.

Hay una parada de la posición de avance en el sistema de dedos de retención ubicada cerca del punto de giro del dedo de retención índice. Esta solo se deberá ajustar si hay un problema de márgenes con el dedo de retención cuando se traslada hacia adelante. Vea la Fig. 7

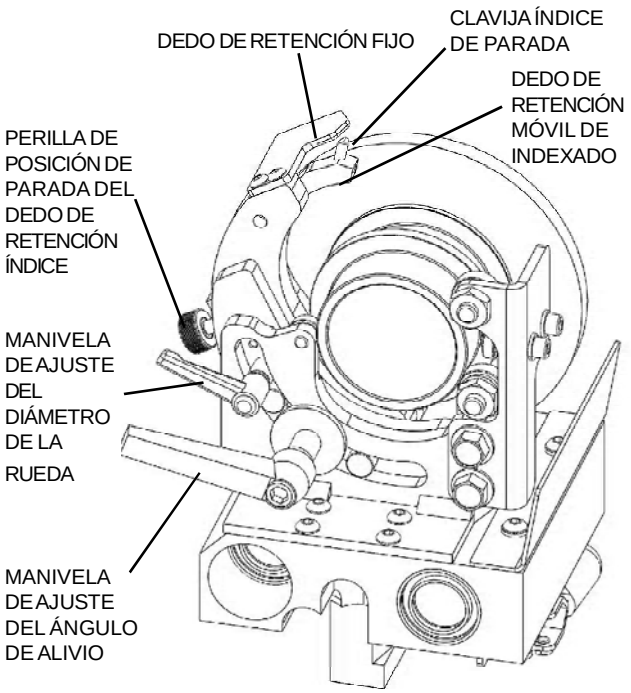

DEDO DE RETENCIÓN FIJO
CLAVIJA ÍNDICE DE PARADA
DEDO DE RETENCIÓN MÓVIL DE INDEXADO
PERILLA DE POSICIÓN DE PARADA DEL DEDO DE RETENCIÓN ÍNDICE
MANIVELA DE AJUSTE DEL DIÁMETRO DE LA RUEDA
MANIVELA DE AJUSTE DEL ÁNGULO DE ALIVIO

FIG. 6

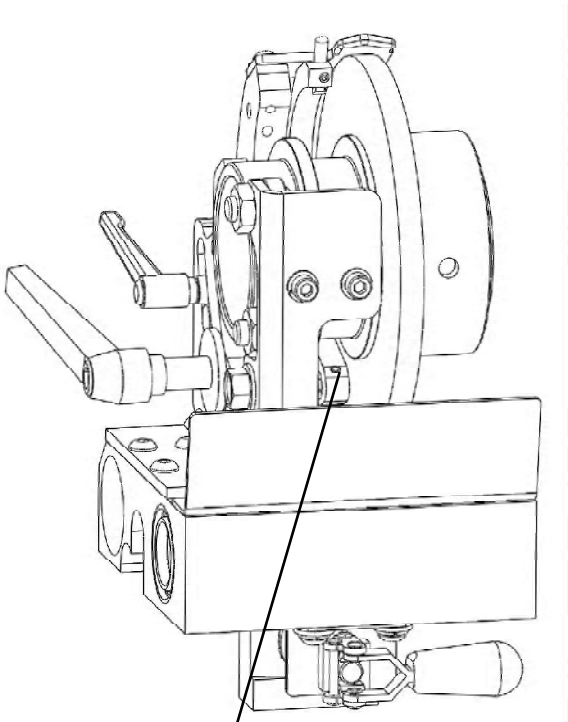


FIG. 7

CALIBRE DE ALINEACIÓN

Una rueda adecuadamente rectificada debe ser cilíndrica. Se debe rectificar hasta eliminar todo el ahusamiento del carrete. Para asegurarse de que el carrete sea correctamente rectificado, **DEBE** alinearse con precisión antes del rectificado. El calibre de alineación digital se utiliza para lograr una configuración precisa del carrete. El calibre se utiliza para configurar la alineación horizontal y comprobar el ahusamiento en milésimas de pulgada. El calibre digital le permite medir un extremo del carrete al extender el riel de deslizamiento hasta que haga contacto con el eje central del carrete. Vea la Fig. 8. Al realizar las mediciones en los extremos izquierdo y derecho del eje central, puede ajustar la alineación horizontal al utilizar las perillas de ajuste frontales del mecanizado hasta que la alineación se encuentre dentro de las 0,005 in (0,13 mm).

Cuando esté finalizada, puede luego reiniciar el calibre en cero en el eje central, retraer la guía de deslizamiento del calibre y medir la superficie externa de la lámina del carrete. Al comparar las lecturas del lateral izquierdo del carrete con las del lateral derecho, puede determinar exactamente cuánto ahusamiento tiene el carrete. Se explicará más adelante en el procedimiento de rectificado cómo compensar el ahusamiento.

NOTA: El calibre puede configurarse para lecturas tanto en pulgadas como en sistema métrico.

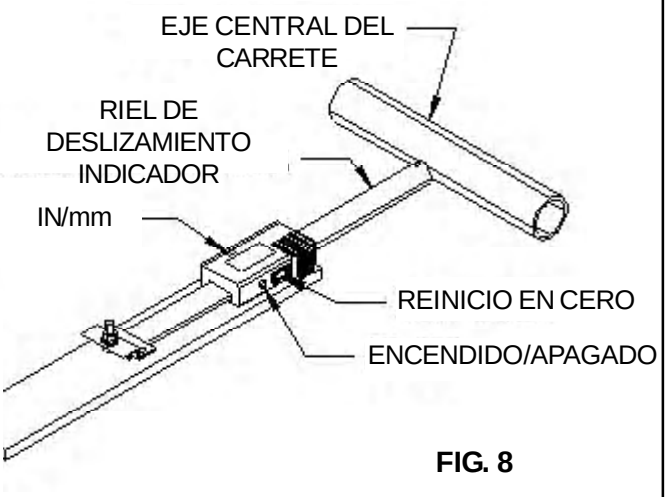


FIG. 8

PREPARACIÓN DE LA UNIDAD SEGADORA PARA VOLVER A AFILAR

Siempre siga el procedimiento especificado en el manual de la unidad de corte cuando prepare la unidad para volver a afilar. Es recomendable que el carrete que se debe volver a afilar se limpie en profundidad. De ser posible, quite las ruedas y la mordaza de bancada del carrete. **Deben volver a afilarse las cuchillas cuando se vuelva a afilar el carrete.** Inspeccione, ajuste y/o reemplace cualquier rodamiento desgastado o dañado. Asegúrese de que los rodamientos del carrete estén en buenas condiciones de trabajo y ajustados adecuadamente, de manera que el carrete pueda girarse fácilmente con la mano.

Puesto que esta rectificadora monta el carrete al utilizar el rodillo posterior y el rodillo frontal del carrete si corresponde, los rodamientos de los rodillos deben estar en buen estado sin holgura. **Los rodillos frontal y posterior deben estar adecuadamente alineados en paralelo con el carrete antes del rectificado.**

FIG. 9

SERÁ MUY DIFICULTOSO EL RECTIFICADO DI GIRO SOBRE LOS CARRETES CON EXCESO DI TENSIÓN EN LOS RODAMIENTOS Y ES POSIBLI QUE CAUSE DAÑOS AL CARRETE O AL MECANISMO IMPULSOR DE ROTACIÓN DE SU RECTIFICADORA. SE PERMITE UNA CARGA MÁXIMA DEL MOMENTO DE TORSIÓN DE NO MÁS DE 25 PULGADAS-LIBRA O PUEDE DAÑARSE EL IMPULSOR DE ROTACIÓN.

CÓMO LEVANTAR EL CARRETE EN POSICIÓN

La rectificadora RG5500 en su versión estándar no cuenta con un dispositivo de elevación. Si el establecimiento no cuenta con un elevador, es recomendable que se utilicen el kit de cabrestante y brazo o la plataforma de elevación posterior.

KIT DE CABRESTANTE Y BRAZO

El kit de cabrestante y brazo se monta en la parte posterior derecha del gabinete. Cuando utilice el cabrestante y brazo, posicione la unidad de corte por detrás de la máquina y asegure la barra esplegadora a la unidad de corte. Utilice el cabrestante para elevar la unidad y virar el carrete al área de trabajo de la máquina. (Consulte el manual del kit para obtener instrucciones adicionales). Vea la Fig. 9. Disponible con el cabrestante manual o eléctrico.

PLATAFORMA DE ELEVACIÓN POSTERIOR

La mesa de elevación posterior es una plataforma portátil que puede utilizarse para elevar el nivel superior del carrete a la rectificadora. El carrete se puede hacer rodar sobre la plataforma con la parte frontal del carrete de cara a la parte frontal de la rectificadora. Una vez quitada la abrazadera del rodillo, se puede hacer rodar el carrete de la plataforma a la máquina desde la parte trasera. La estación de trabajo utiliza un sistema recargable de 12 V para impulsar la plataforma y puede moverse alrededor del establecimiento sobre las 4 ruedas de la roldana. Vea la Fig. 10

FIG. 10

INSTALACIÓN DEL CARRETE

Mueva el carrete a la posición aproximada al mantener el rodillo posterior sobre la parte superior de la mesa, y el rodillo frontal en los montajes del rodillo frontal.

¡ASEGÚRESE DE QUE LA RUEDA ABRASIVA ESTÉ LO SUFICIENTEMENTE BAJA COMO PARA DEJAR UN ESPACIO PARA EL CARRETE. PUEDE BAJAR LA RUEDA ABRASIVA AL GIRAR AMBAS MANIVELAS EN SENTIDO CONTRARIO A LAS AGUJAS DEL RELOJ.

Ubique el carrete frontal en el centro de la máquina. Mueva los montajes del rodillo hacia afuera tanto como sea posible en dirección a los extremos del rodillo frontal. (Vea la Fig. 11). Utilice las calcomanías sobre la barra de mecanizado para ayudarse con el posicionamiento del mecanizado frontal. Compruebe que haya un margen entre el mecanizado, el rodillo frontal y el marco con ambas ruedas de giro y alivio. Esto asegurará que no tenga que mover el carrete entre el rectificado de giro y el de alivio. NOTA: En los carretes más grandes, es posible que sea necesario desviar ligeramente el carrete del centro para permitir que se monte el impulsor de rotación sobre el lateral adecuado de la unidad de corte.

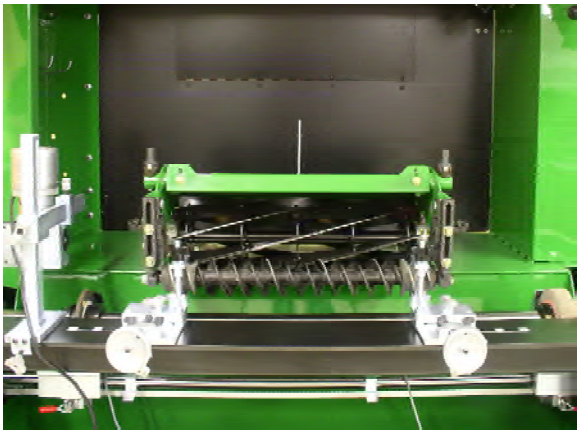


FIG. 11

Ubique el rodillo posterior sobre la abrazadera del rodillo posterior. (Vea la Fig. 12).

Si utiliza los soportes para todas las posiciones, configure la altura vertical de estos de manera que la parte inferior del carrete esté entre 1,5 y 2,0 in (38 y 51 mm) por encima de la mesa. Es recomendable también que se monte el brazo de soporte con la menor extensión posible del soporte para todas las posiciones al dejar solo el margen suficiente como para montar el carrete en la “V” del brazo de soporte.

FIG. 12

Ubique el carrete adentro y afuera al ajustar las manivelas frontales. El carrete debe ubicarse de manera que el eje del carrete esté orientado en la posición de la una en punto o a 30° grados de la rueda de rectificado. Vea la figura 13. Si experimenta problemas con el margen, el carrete puede moverse hacia adelante o hacia atrás para resolver este problema. Si rectifica un carrete QA5 o QA7, utilice las calcomanías ubicadas en el mecanizado para ubicar rápidamente el carrete en la posición óptima. Vea la Fig. 2. Luego de posicionar el carrete, bloquee correctamente el rodillo frontal y ajuste la abrazadera posterior. Asegúrese de que todas las perillas estén ajustadas antes de comenzar el rectificado.

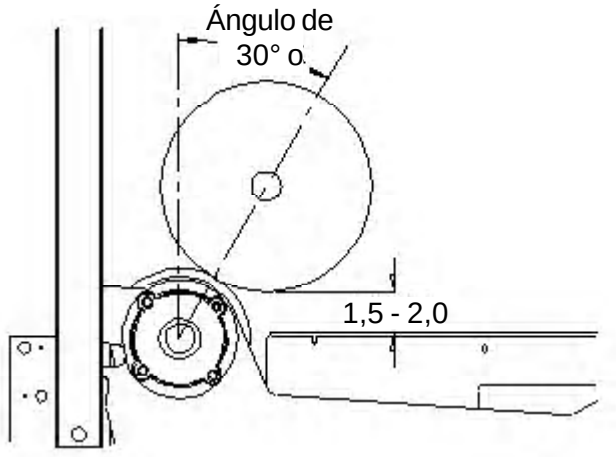


FIG. 13

¡AJUSTE FIRMEMENTE TODAS LAS PERILLAS DE BLOQUEO ANTES DE COMENZAR EL RECTIFICADO. CUALQUIER PERILLA, ABRAZADERA O RODAMIENTO SUELTO TENDRÁ UN EFECTO ADVERSO EN LA CALIDAD DEL RECTIFICADO.

ALINEACIÓN DEL CARRETE

IMPORTANTE: Cuando mida el eje central del carrete, siempre asegúrese de que esté poniendo en contacto un área libre de suciedad y de grama.

El soporte de extensión horizontal del calibre digital puede ajustarse verticalmente para permitir que el calibre digital se ubique de manera que no se ponga en contacto con ningún miembro del marco del carrete. Además, el montaje de la guía de desplazamiento vertical en el conjunto horizontal de piezas soldadas tiene tres posiciones. Quite la perilla del lateral para ajustar la inclinación de la guía de desplazamiento vertical de ser necesario para que no se ponga en contacto con ningún miembro del marco del carrete. Vea la Fig. 14

Antes de alinear la unidad de corte, afloje las perillas de bloqueo horizontal sobre el mecanizado para permitir que se ajuste la unidad de corte en el plano horizontal. Vea la Fig. 14

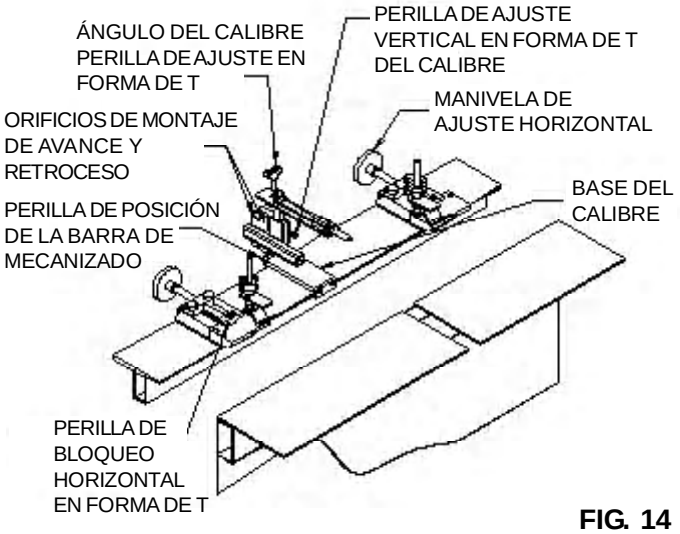

ÁNGULO DEL CALIBRE PERILLA DE AJUSTE EN FORMA DE T
PERILLA DE AJUSTE VERTICAL EN FORMA DE T DEL CALIBRE
MANIVELA DE AJUSTE HORIZONTAL
ORIFICIOS DE MONTAJE DE AVANCE Y RETROCESO
BASE DEL CALIBRE
PERILLA DE POSICIÓN DE LA BARRA DE MECANIZADO
PERILLA DE BLOQUEO HORIZONTAL EN FORMA DE T

FIG. 14

Para alinear la unidad de corte, mueva el montaje del calibre digital hacia el lateral izquierdo del carrete tanto como sea posible. Extienda el calibre digital mientras se asegura de que la punta del calibre esté centrada con el eje central del carrete. Vea la Fig. 15. Con el calibre presionado contra el eje central del carrete, configure el calibre en cero. Retraiga el calibre, muévalo a la derecha del carrete y mídalo con el centro del eje del carrete. No gire el eje del carrete con excepción de una cantidad mínima si hay problemas de márgenes con las láminas del carrete. Con el calibre presionado contra el eje central, ajuste la manivela horizontal hasta que el calibre indique cero. Repita los ajustes de un lado al opuesto hasta que la alineación esté dentro de las 0,005" (0,13 mm).

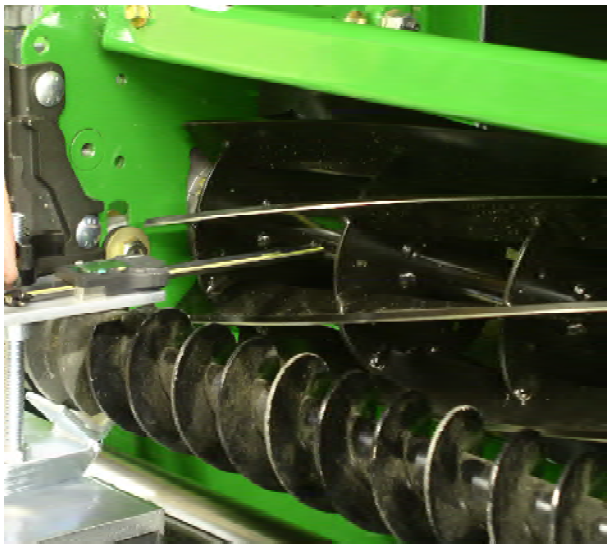


FIG. 15

CÓMO COMPROBAR EL AHUSAMIENTO

Primero, mida el lateral izquierdo del carrete tan a la izquierda como sea posible con el calibre de alineación digital; asegúrese de que la punta del calibre esté centrada con el eje central del carrete. Configure el calibre en cero, y luego, mídalo contra el filo de una lámina. Recuerde o tome nota de este número. Muévase al lateral opuesto y realice la misma medición. Compare los dos números. La diferencia es la cantidad de ahusamiento en el **radio** de la rueda.

NOTA: PARA OBTENER UNA LECTURA DE AHUSAMIENTO CORRECTA PARA QUE PUEDA UTILIZARSE LUEGO CON EL GRÁFICO DE AHUSAMIENTO, LA LECTURA DEBE TOMARSE TAN CERCA DE LOS EXTREMOS DEL CARRETE COMO SEA POSIBLE, LO QUE DARÁ LA MAYOR DISTANCIA ENTRE LAS LECTURAS.

Para quitar el ahusamiento de la rueda, deberá avanzarse más el lateral del carrete que sea más grande para quitar el material extra.

Quite el calibre y almacene el calibre digital en la clavija ubicada en el lateral frontal derecho de la máquina. La base del calibre puede ubicarse en el interior de la máquina para que no moleste.

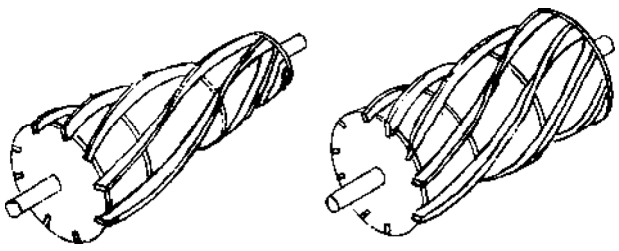


FIG. 16

ALINEACIÓN DEL EJE DE LA RECTIFICADORA CON EL CARRETE

Para alinear el eje de la rectificadora con el carrete, eleve el eje de manera que la rueda de giro esté alrededor de ¼ in (6 mm) de las láminas del carrete. Mueva la rueda de giro a un lado del carrete y eleve el eje de la rectificadora hasta que la rueda apenas toque la lámina. Mueva la rueda al otro lado del carrete y eleve el eje hasta que la rueda apenas toque. Vuelva a verificar en cada lado y realice ajustes en espejo hasta que la rueda toque lo mismo en ambos extremos del carrete. El eje de la rectificadora está ahora alineado verticalmente con el diámetro exterior del carrete. Configure en cero los calibres ubicados en la carcasa de ajuste vertical. Compruebe que no haya puntos elevados en el carrete al mover la rueda a lo largo del carrete mientras lo gira. Si hay puntos elevados, baje el eje de manera equidistante en ambos extremos y configure en cero los calibres nuevamente.

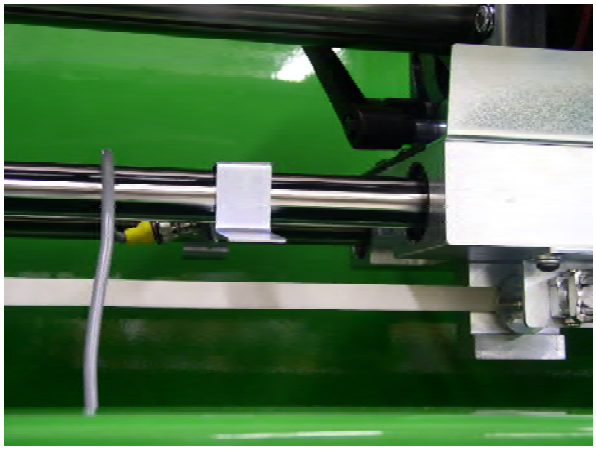


FIG. 17

CÓMO CONFIGURAR LOS LÍMITES LONGITUDINALES

Mueva la rueda abrasiva a la derecha hasta que se haya alejado del carrete aproximadamente ¼ in (6 mm; si el margen con el marco lo permite). Desacople ambos montajes de rectificado de giro y alivio de la correa longitudinal. Gire el potenciómetro de velocidad longitudinal a cero y encienda el interruptor del motor longitudinal. Esto activará los sensores de proximidad. Mueva el interruptor de límite de recorrido longitudinal hacia adentro hasta que la luz del sensor de proximidad se ilumine. Mueva la rueda al extremo opuesto, al alejar el carrete como se menciona anteriormente, y configure el interruptor de límite de recorrido longitudinal izquierdo. (Fig. 17) Acople la correa longitudinal, y lentamente, aumente la velocidad longitudinal. Permita que la rueda se desplace de un extremo a otro para comprobar que los interruptores se detengan y reviertan la dirección de la rueda abrasiva. Verifique que la rueda abrasiva sobresalga en cada extremo durante su recorrido. Nota: Si el carrete golpea el marco, ajuste los sensores de recorrido de manera que la rueda no se ponga en contacto con el marco.

! SI EL MARCO DEL CARRETE SE EXTIENDE POR DEBAJO DEL CARRETE MISMO, ASEGÚRESE DE QUE LA PARADA ESTÉ CONFIGURADA DE MANERA QUE LA RUEDA ABRASIVA NO SE ENCUENTRE CON EL MARCO DURANTE EL RECTIFICADO.

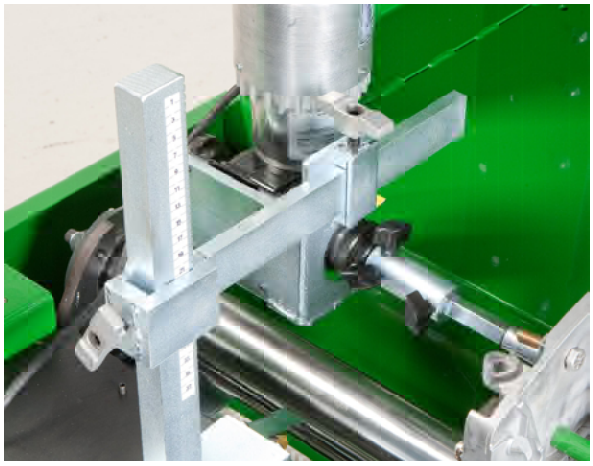


FIG. 18

CÓMO ACOPLAR LA UNIDAD DEL IMPULSOR DE ROTACIÓN DE VELOCIDAD VARIABLE AL CARRETE

La unidad del impulsor de rotación se acopla al extremo del eje del carrete o a un componente del sistema de impulsión. Consulte el manual de la unidad de corte para obtener la ubicación y el acoplamiento correctos del impulsor de rotación. Determine de qué lado montar el impulsor de rotación. Por lo general, será el mismo componente del sistema del impulsor de rotación utilizado para el esmerilado. Vea la Fig. 18

IMPORTANTE: Cuando realice rectificado de giro, el carrete debe girar en la misma dirección que la rueda abrasiva. Vea la Fig. 19

Antes de ubicar la unidad de giro, familiaricémonos con los ajustes disponibles y los montajes de acoplador/impulsor. Vea la Fig. 20

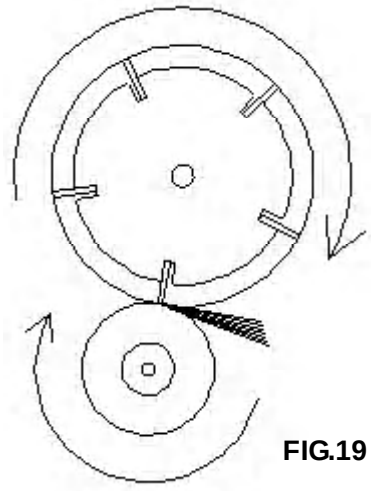


FIG.19

INSTRUCCIONES DE OPERACIÓN (Continuación)

Perilla A:
Permite que la unidad de giro se desacople y se mueva hacia adentro y hacia afuera.
Perilla B:
Permite que la unidad de giro se desacople y se mueva hacia arriba y hacia abajo.
Perilla C:
Permite que el montaje de giro se desacople de la barra de mecanizado y se mueva de un extremo a otro.

Al momento de ubicar la unidad de giro, es posible que sea necesario completar varios de los ajustes antes mencionados para alinear adecuadamente la unidad de giro con el carrete.

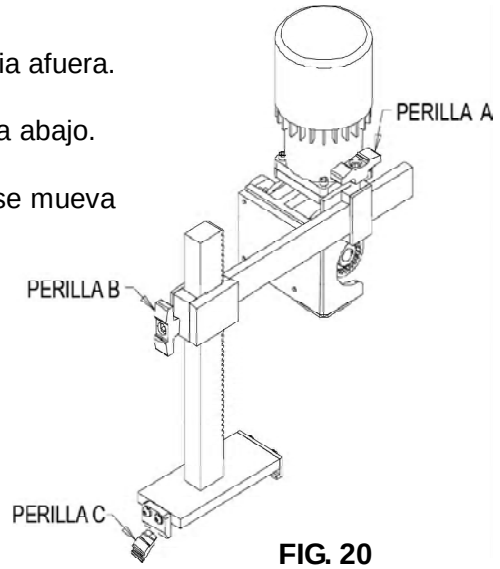
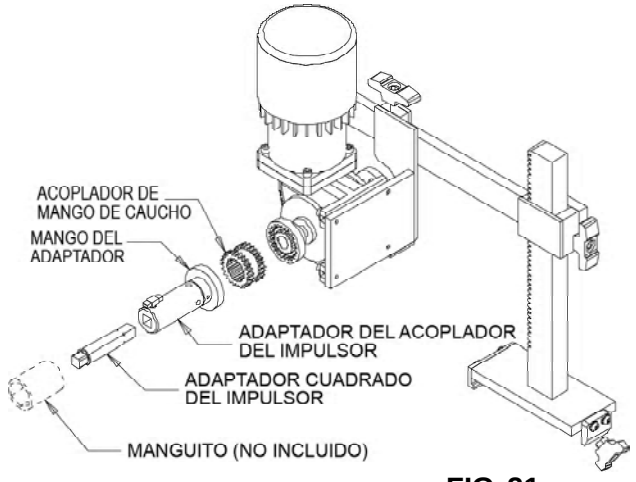


FIG. 20

EL MONTAJE DE ACOPLADOR INCLUYE:
ACOPLADOR DE MANGO DE CAUCHO: Este se ubica en el acoplador de la brida correspondiente que ya está montado en el eje del impulsor de rotación.
Vea la Fig. 21
MONTAJE DEL ADAPTADOR DEL ACOPLADOR DEL IMPULSOR: Este se monta al acoplador de caucho.
Nota: Si se quita el adaptador del acoplador del impulsor, hay un eje del impulsor corto y cuadrado acoplado al mango del adaptador. Se puede utilizar con un manguito si el espacio es limitado.
MANGO DEL ADAPTADOR: Conecta el acoplador de caucho con el adaptador cuadrado del impulsor.
ADAPTADOR CUADRADO DEL IMPULSOR: Se coloca dentro del adaptador del acoplador del impulsor. El adaptador cuadrado del impulsor tiene un movimiento de aproximadamente 2" (51 mm). Será necesario moverlo cuando acople el carrete a la unidad del impulsor de rotación. Este eje del adaptador cuenta con una estría maquinada en el extremo opuesto del aro a presión. Esta estría está allí para advertirle que se alcanzó la extensión máxima del eje cuadrado del impulsor.
Si no puede conectar el carrete sin extenderse más allá de esta estría, entonces debe volver a ubicar la unidad de giro sobre la barra de mecanizado (Perilla C). Un manguito cuadrado del impulsor o un adaptador del impulsor de carrete de 1/2" (12,7 mm) se utiliza para conectar el adaptador cuadrado del impulsor al carrete.


ACOPLADOR DE MANGO DE CAUCHO
MANGO DEL ADAPTADOR
ADAPTADOR DEL ACOPLADOR DEL IMPULSOR
ADAPTADOR CUADRADO DEL IMPULSOR
MANGUITO (NO INCLUIDO)
FIG. 21

NO TRASPASE LA ESTRÍA DEL EJE CUADRADO; EN SU LUGAR, VUELVA A UBICAR LA UNIDAD DE GIRO.

NOTA: El manguito cuadrado o adaptador del impulsor de 1/2" (12,7 mm) que se ubica en el carrete en el rectificado de giro ***NO*** se incluye con la rectificadora. Consulte la página siguiente para más detalles

Los procedimientos a continuación facilitarán la configuración de la unidad del impulsor de rotación.

1. Mueva la unidad del impulsor de rotación cerca del carrete. Alinee el eje en el impulsor de rotación con la tuerca del carrete al completar los ajustes necesarios que se explicaron anteriormente.
2. Ahora, deslice la unidad del impulsor de rotación aproximadamente unas 7" (18 cm) desde el punto de acoplamiento del impulsor del carrete y fíjela en forma segura a la barra de mecanizado al ajustar la perilla de bloqueo. (Perilla C)
3. Ubique el manguito o adaptador cuadrado del impulsor de 1/2" (12,7 mm) adecuado sobre la tuerca del impulsor del carrete, y luego, coloque el eje cuadrado del impulsor en el manguito. Ubique el mango del adaptador por sobre el eje del impulsor y coloque el montaje del adaptador del acoplador del impulsor dentro de este. Finalmente, ubique el adaptador de caucho sobre el adaptador del acoplador del impulsor. Vea la Fig. 21
4. Al sostener el eje cuadrado del impulsor firmemente en posición con su mano izquierda, podrá mover los componentes a la derecha y colocar el acoplador de caucho dentro de la brida sobre la unidad del impulsor de rotación. Cuando esto esté hecho, ajuste la perilla en forma de T sobre el mango del adaptador para sostener todas las piezas en su lugar.
5. Finalmente, vuelva a ajustar la unidad del impulsor de rotación si no está alineada.

NOTA: No es necesario contar con una alineación perfecta, pero debe acercar lo suficiente de manera que el acoplador se mantenga acoplado y que no se aplique un exceso de torsión al carrete.

INSTRUCCIONES DE OPERACIÓN (Continuación)

ADAPTADORES DEL IMPULSOR DEL CARRETE

Esta rectificadora está equipada con un adaptador que transfiere la rotación del acoplador de la caja de engranajes del impulsor de rotación a una entrada cuadrada macho de 1/2". Para operar la rectificadora, se necesita un adaptador de la entrada cuadrada macho de 1/2" al eje del carrete. Estos adaptadores **NO** están incluidos con esta rectificadora.

En los últimos años, la mayoría de las unidades de corte cuenta con una ranura macho o hembra en el extremo del eje del carrete que se conecta con un eje de motor hidráulico o eléctrico.

Si tiene un eje de carrete que tiene un extremo de interior roscado al que tiene acceso, instale un perno de cabeza hexagonal o un tornillo de cabeza cilíndrica ranurada del tamaño de esa rosca con una contratuerca de manera que esté bien ajustado para que no se suelte durante el rectificado de giro, y luego, atornille con un manguito del impulsor de 1/2" para la forma hexagonal o el tamaño de una llave hexagonal.

CARRETES JOHN DEERE

ACOPLADOR: Los ejes de exterior ranurado utilizan un acoplador hembra ranurado entre el eje del carrete y el eje macho ranurado del motor hidráulico. La ranura es una ranura dentada de 8,9 u 11. Nuestra recomendación es que adquiera un acoplador ranurado hembra de John Deere y lo suelde a una extensión de manguito corta y cuadrada de 1/2".
Nota: El adaptador ranurado de 8 dientes puede utilizarse con un adaptador del impulsor de manguito cuadrado (de macho cuadrado de 3/8" a hembra cuadrado de 1/2") sin soldadura.

DIÁM. DEL CARRETE	TIPO DE CARRETE	Recomendación
5"	G, M	Cuenta con un eje externo de 8 dientes. Utiliza el acoplador AET11038.
7"	H	Cuenta con un eje externo de 11 dientes. Utiliza el acoplador TCA12581. (NOTA: TAMBIÉN PUEDE ATORNILLARSE CON UN MANGUITO HEXAGONAL DE 1,25).
7"	26H	Cuenta con un eje externo de 9 dientes. Utilice el acoplador AET11310. (NOTA: TAMBIÉN PUEDE ATORNILLARSE CON UN MANGUITO HEXAGONAL DE 1,25).
8"	ESP	Cuenta con un eje externo de M16 X 2. Utilice una tuerca A31869 y atornille con un manguito hexagonal de 24 mm.
5"	WBGM	Utilice un perno UNF de 3/8"-24 y atornille con un manguito hexagonal de 9/16.
5"	QA5	Cuenta con un eje de ranurado interno de 8 dientes. Utilice la pieza AMT3022 para producir un adaptador.
7"	QA7	Cuenta con un eje de ranurado interno de 11 dientes. Utilice un manguito hexagonal de 1,25 o produzca un adaptador a partir de la pieza TCA18958.

EQUIPAMIENTO TORO:
Toro utiliza una ranura hembra de 8 o 9 dientes sobre los carretes. El ranurado hembra de 8 dientes puede atornillarse eficazmente con un adaptador del impulsor de manguito cuadrado (de macho cuadrado de 3/8" a hembra cuadrado de 1/2"). La ranura de 9 dientes requiere de un adaptador. Nuestra recomendación es adquirir una herramienta Toro para adaptador, número de pieza TOR-4074, disponible en K-Line Industries, Inc. 315 Garden Ave. Holland, MI 49424.

EQUIPAMIENTO JACOBSEN:
A continuación, hay una lista de sistemas de atornillado sobre la base de las unidades de corte:
* las unidades de carrete de 5" pueden atornillarse desde el extremo del motor no hidráulico del carrete. Instale un perno de 3/8" en el extremo del eje del carrete con una contratuerca, de manera que quede bien ajustada para que no se suelte durante el rectificado. Utilice un manguito de 9/16" para atornillar. También pueden atornillarse desde el extremo del motor hidráulico al presionar el adaptador del impulsor de manguito cuadrado (de macho cuadrado de 3/8" a hembra cuadrado de 1/2") dentro del acoplador de carrete ranurado Jacobsen, número de pieza 337370, y utilizar este montaje presionado como adaptador.
* las unidades de carrete de 7" pueden atornillarse desde cualquier extremo. La unidad de carrete cuenta con un acoplador adjunto al eje del carrete en ambos extremos. Adquiera la pieza Jacobsen número 4102440, el eje del motor del carrete, suelde el eje del motor hidráulico desde el kit al manguito de 1/2" y utilice esta soldadura como adaptador.
* las unidades de carrete Tri-King pueden atornillarse en unidades de impulsor de polea más antiguas con un manguito de 9/16" sobre el perno de 3/8" que sostiene la polea. En unidades ranuradas más nuevas, adquiera el acoplador del carrete ranurado Jacobsen, número de pieza 132002, y presione un adaptador al adaptador del impulsor de manguito cuadrado (de macho cuadrado de 3/8" a hembra cuadrado de 1/2") dentro del acoplador de carrete ranurado y utilice este montaje como adaptador.

RECOMENDACIÓN PARA LAS RPM DEL IMPULSOR DE GIRO Y LA VELOCIDAD LONGITUDINAL DURANTE EL RECTIFICADO

RPM DEL IMPULSOR DE GIRO

LAS RPM DEL IMPULSOR DE ROTACIÓN SON MUY IMPORTANTES PARA LOGRAR UNA BUENA CALIDAD EN EL RECTIFICADO. TENGA LA PRECAUCIÓN DE ESTABLECER LAS RPM DEL IMPULSOR DE ROTACIÓN SEGÚN LAS INSTRUCCIONES A CONTINUACIÓN.

Por lo general, las RPM del impulsor de rotación estarán entre 180 RPM (45 %) y 380 RPM (100 %). La velocidad necesaria para girar un carrete específico depende del diámetro del carrete, el número de láminas del carrete y la dureza de este. Para todos los carretes, hay una velocidad de rotación óptima en la que se realiza un rectificado **AGRESIVO**, pero al mismo tiempo de un acabado fino a medida que rectifica el carrete. Su objetivo es rectificar por giro el carrete tan agresiva y rápidamente como sea posible mientras mantiene la mejor calidad.

Se recomienda que comience a rectificar cada carrete a una velocidad de giro de 200 RPM (50 %) y que evalúe las RPM al ajustarlas más alto o más bajo para optimizar la velocidad de rotación para ese carrete. Si la velocidad de rotación no está configurada correctamente, puede experimentar dos problemas, labrado de la rueda abrasiva o resonancia en esta. Cada uno de estos problemas se explica a continuación.

En algunos carretes, especialmente aquellos con gran cantidad de láminas y de diámetro pequeño, si se configura una velocidad de rotación muy alta, el carrete puede actuar como un reavivador de la rueda abrasiva. Puede desarrollar lo que parece ser un rectificado muy agresivo (como si el avance tuviese un avance propio), y luego, una parada repentina del rectificado sin una rueda abrasiva que se ponga en contacto con el carrete. Si esto ocurre, la velocidad de rotación se configuró demasiado alta, y en efecto, labró su rueda abrasiva.

Algunos carretes cuentan con un nivel de RPM de resonancia en el que el carrete se armoniza con la rueda abrasiva, y la resonancia hace que la rectificadora vibre y dé como resultado un rectificado de mala calidad. Al cambiar la velocidad de rotación a un mayor o menor nivel de RPM, saldrá del rango de resonancia.

Luego de determinar la mejor velocidad en RPM para un carrete, tome nota de las RPM en el “Gráfico de configuración” en la sección “NOTAS”. (El Gráfico de configuración se encuentra al final de este manual). Al tomar nota de las RPM correctas, evitará tener que evaluar la velocidad de rotación la próxima vez que rectifique el carrete. También tome nota de la posición del impulsor de rotación al utilizar las calcomanías de posición sobre el montaje de rotación y documentar la posición en el “Gráfico de configuración”.

RPM DEL IMPULSOR LONGITUDINAL

El potenciómetro de velocidad longitudinal puede ajustarse desde aproximadamente 5 pies por minuto (1,5 metros por minuto) hasta 20 pies por minuto (6 metros por minuto). Es recomendable que rectifique entre 15 y 20 pies por minuto (4 y 6 metros por minuto).

El rectificado a una velocidad longitudinal menor, por ejemplo, 10 pies por minuto (3 metros por minuto), dará un acabado mejor, pero dilatará el período del ciclo de rectificado. La elección del operador controla el acabado del rectificado versus el período del ciclo de rectificado.

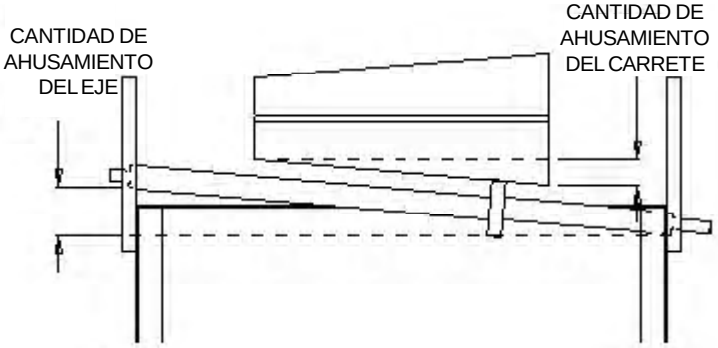
CÓMO COMPENSAR EL AHUSAMIENTO.

Para mantener la mejor calidad de corte, debe eliminarse el ahusamiento de un carrete para devolverle la forma cilíndrica al carrete. Para eliminar el ahusamiento que se midió con el calibre (como se explicó anteriormente en la Sección Cómo comprobar el ahusamiento), en primer lugar, alinee el carrete al eje por el método de toque (como se explicó anteriormente). Luego, deje que el lado del eje de la rectificadora que está alto (el lado más pequeño del carrete) descienda la cantidad sugerida en el gráfico.

[Consulte el gráfico de la página a continuación o el Gráfico “Cómo compensar el ahusamiento” ubicado en la máquina].

Ejemplo: Para un carrete de 22 pulgadas (56 cm) de largo con un ahusamiento medido de 0,12" (3 mm), el dispositivo de ajuste del lado más pequeño debería descender para que haya una lectura de 0,546" (13,9 mm).

Esto llevará el eje de la rectificadora a una posición paralela al eje central. Configure en cero los calibres ubicados en las torres de ajuste vertical y avance ambos lados de manera equidistante hasta que la rueda apenas toque el lado más grande del carrete. Configure en cero los calibres nuevamente. Ahora, está listo para comenzar con el rectificado y quitar el ahusamiento. Cuando realice el rectificado, la rueda solo hará contacto con el lado más grande del carrete y gradualmente rectificará más a medida que las áreas más grandes se rectifiquen. El botón de contramarcha puede utilizarse para agilizar este proceso. Rectifique hasta que haya contacto completo a lo largo de todo el carrete y que todo el largo de sus láminas esté afilado.



INSTRUCCIONES DE OPERACIÓN (Continuación)

CARRETE GRÁFICO DE CONFIGURACIÓN DE MEDIDO

AHUSAMIENTO ANCHO

AJUSTE DE AHUSAMIENTO	16	18	20	22	24	26	28	30	32
0,005	0,033	0,029	0,025	0,023	0,021	0,019	0,017	0,016	0,015
0,010	0,066	0,058	0,051	0,045	0,041	0,038	0,035	0,032	0,030
0,015	0,100	0,086	0,076	0,068	0,062	0,056	0,052	0,048	0,045
0,020	0,133	0,115	0,102	0,091	0,082	0,075	0,069	0,064	0,060
0,025	0,166	0,144	0,127	0,114	0,103	0,094	0,086	0,080	0,075
0,030	0,199	0,173	0,153	0,136	0,123	0,113	0,104	0,096	0,089
0,035	0,233	0,202	0,178	0,159	0,144	0,132	0,121	0,112	0,104
0,040	0,266	0,231	0,203	0,182	0,165	0,150	0,138	0,128	0,119
0,045	0,299	0,259	0,229	0,205	0,185	0,169	0,156	0,144	0,134
0,050	0,332	0,288	0,254	0,227	0,206	0,188	0,173	0,160	0,149
0,060	0,399	0,346	0,305	0,273	0,247	0,225	0,207	0,192	0,179
0,070	0,465	0,403	0,356	0,318	0,288	0,263	0,242	0,224	0,209
0,080	0,532	0,461	0,407	0,364	0,329	0,301	0,277	0,256	0,238
0,090	0,598	0,519	0,458	0,409	0,370	0,338	0,311	0,288	0,268
0,100	0,665	0,576	0,508	0,455	0,412	0,376	0,346	0,320	0,298
0,120	0,798	0,692	0,610	0,546	0,494	0,451	0,415	0,384	0,358

Ajuste hacia abajo del lado pequeño del carrete

RECTIFICADO DE GIRO

Luego de que el carrete se haya alineado y se haya ajustado el ahusamiento, está ahora listo para el rectificado de giro del carrete. Cierre las tapas de los protectores frontal y posterior. (La rueda abrasiva y los motores de giro no funcionarán a menos que las tapas estén cerradas). Ubique el interruptor selector de giro/alivio en la posición de giro. Encienda el motor de rectificado y el interruptor del motor del impulsor de rotación. Configure la velocidad de rotación en aproximadamente 200 rpm (consulte las RPM del impulsor de rotación de la página anterior). Asegúrese de que la rotación sea la misma que la de la rueda abrasiva: en sentido de las agujas del reloj (CW) viéndolo desde el extremo derecho. Vea la Fig. 22

IMPORTANTE: Cuando el carrete gira en la misma dirección de rotación que la rueda abrasiva, el punto de contacto donde se encuentran está en direcciones opuestas.

Encienda el interruptor del motor del impulsor longitudinal y gire el indicador de velocidad para aumentarla hasta aproximadamente 15 y 20.

IMPORTANTE: Si el rectificado comienza a ponerse pesado, ajuste el cabezal de rectificado hacia abajo hasta que pueda recorrer todo el largo del carrete sin experimentar un rectificado pesado.

Cuando rectifique, avance la rueda aproximadamente 0,005" (0,13 mm) por vez. Permita que la rueda abrasiva se deslice de un lado a otro a través del carrete 2 a 3 veces antes de avanzar. El rectificado de giro estará completo cuando haya contacto completo a lo largo de todo el carrete, y cuando todo el largo de sus láminas y el carrete estén afilados. El último paso debe ser un rectificado de avance normal de 0,005" (0,13 mm) a una velocidad longitudinal lenta (aprox. 8 pies por minuto [2,5 metros por minuto] o más lenta). Luego del último paso, apague la rectificadora.

(Nota: Debido a que se configuró el carrete en la posición de la una en punto, avanzar la rueda 0,015 pulgadas (0,38 mm) quitará 0,010 pulgadas de material.)

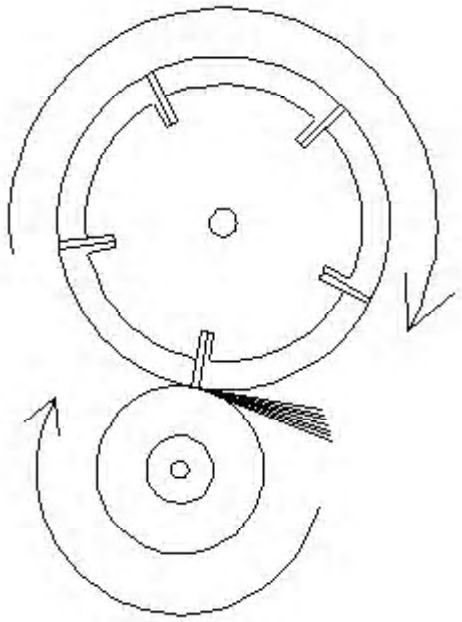


FIG. 22

RECTIFICADO DE ALIVIO

Para cambiar al rectificado de alivio, desacople el montaje del centro de la rueda abrasiva de giro y estaciónelo lo más a la derecha posible. Traiga el montaje del centro de alivio por sobre el carrete para el rectificado de alivio. Esto necesitará que vuelva a posicionar los soportes del interruptor de proximidad de recorrido.

Nota: A medida que el diámetro del carrete disminuye y el número de láminas aumenta, el diámetro de la rueda abrasiva de alivio trabaja mejor cuando es más pequeño. Por ejemplo, un carrete de cortadora de césped de 5" (127 mm) de diámetro con 11 láminas logra un mayor ángulo de alivio con una rueda abrasiva más pequeña.

ESPIRAL DEL CARRETE

Verifique si su unidad segadora cuenta con una hélice normal o de contramarcha.

NOTA: Mientras estudia el dedo de retención guía **EN LA PÁGINA A CONTINUACIÓN, SE MUESTRA UNA HÉLICE DE CARRETE NORMAL.** Mientras estudia el dedo de retención guía **EN LA PÁGINA SIGUIENTE, SE MUESTRA UNA HÉLICE** DE CARRETE DE CONTRAMARCHA. El punto alto del dedo de retención de alivio está del lado derecho de la rueda abrasiva.

La mayoría de las unidades segadoras cuenta con una hélice normal.

EL PUNTO ALTO DEL DEDO DE RETENCIÓN DE ALIVIO DEBE ESTAR SIEMPRE EN EL VÉRTICE DE LA RUEDA ABRASIVA QUE HACE CONTACTO CON EL CARRETE. EN ESTA RECTIFICADORA, ES SIEMPRE EL LADO DERECHO DE LA RUEDA ABRASIVA.

LABRADO DE LA RUEDA

Si la rueda abrasiva se carga con material, es posible que sea necesario labrar la rueda. El modelo RG5500 se distribuye con un reavivador de punta de diamante. Para utilizarlo, coloque el reavivador sobre el brazo horizontal del impulsor de rotación en el área donde la rueda debe ser labrada. Ajuste el reavivador en la posición y ángulo adecuados. Levante la rueda abrasiva de manera que apenas toque el reavivador.

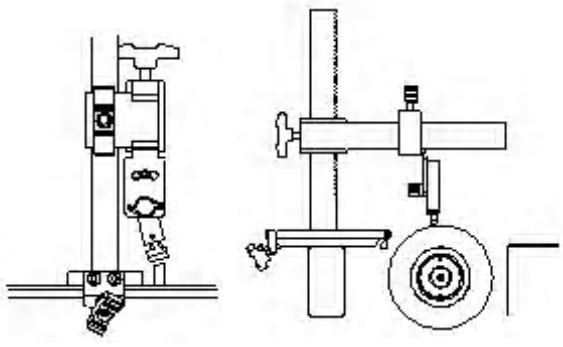
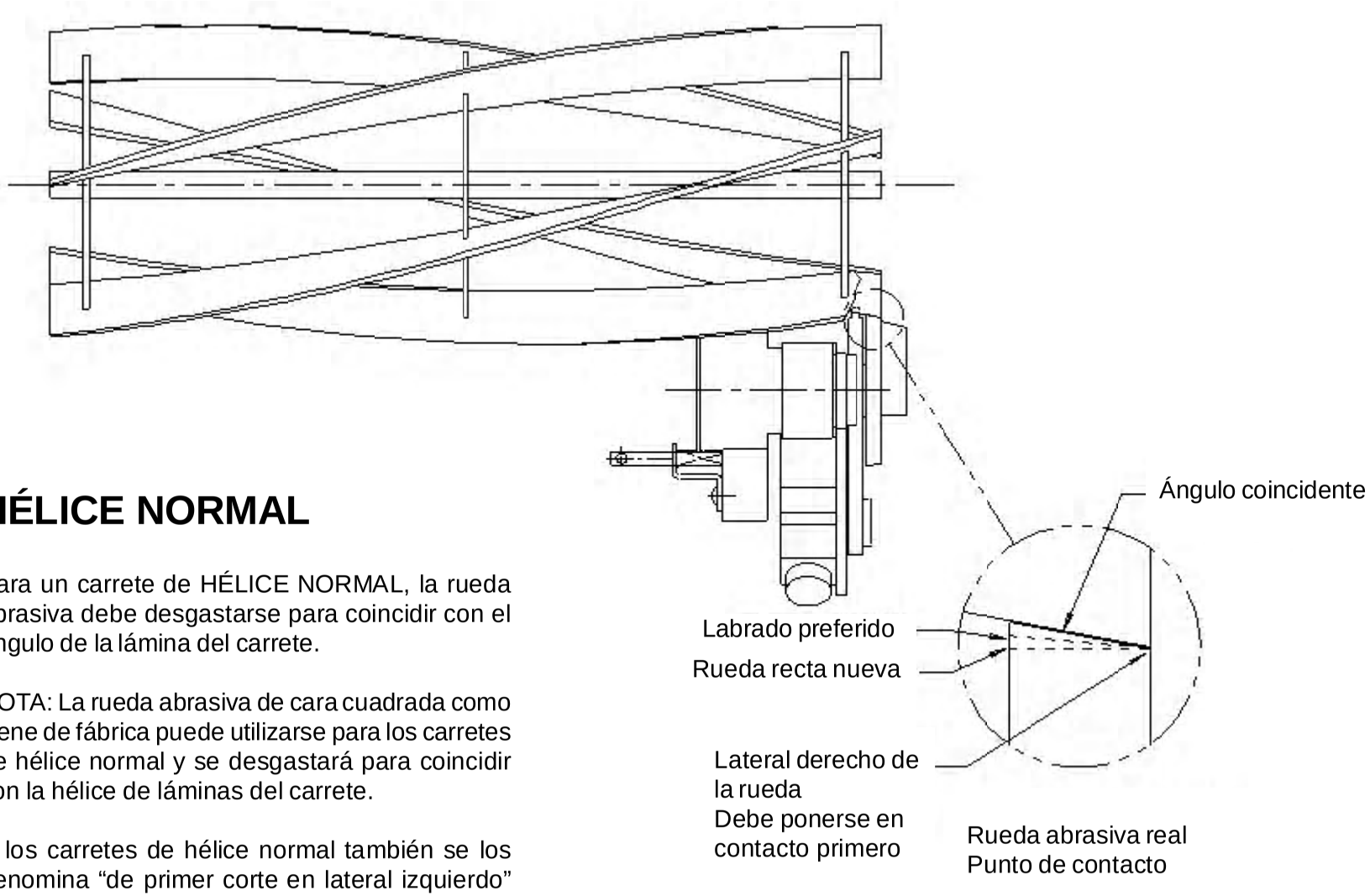


FIG. 23

Para labrar la rueda abrasiva de giro, disponga el reavivador en posición derecha. Cierre las tapas y avance la rueda abrasiva de giro dentro del reavivador, y luego, mueva la rueda abrasiva de lado a lado contra el reavivador que labrará la cara completa de la rueda.

Normalmente, solo avance 0,002" (0,05 mm) por paso. Un avance demasiado profundo puede dañar el reavivador o la rueda. Continúe el labrado hasta que la rueda se vea como nueva o se haya logrado la forma adecuada.

Para labrar la rueda de alivio, disponga el reavivador en el ángulo correcto para un carrete de hélice normal y de hélice de contramarcha. Cierre las tapas y avance la rueda abrasiva de alivio hacia el reavivador. **NO** mueva la rueda abrasiva de lado a lado.

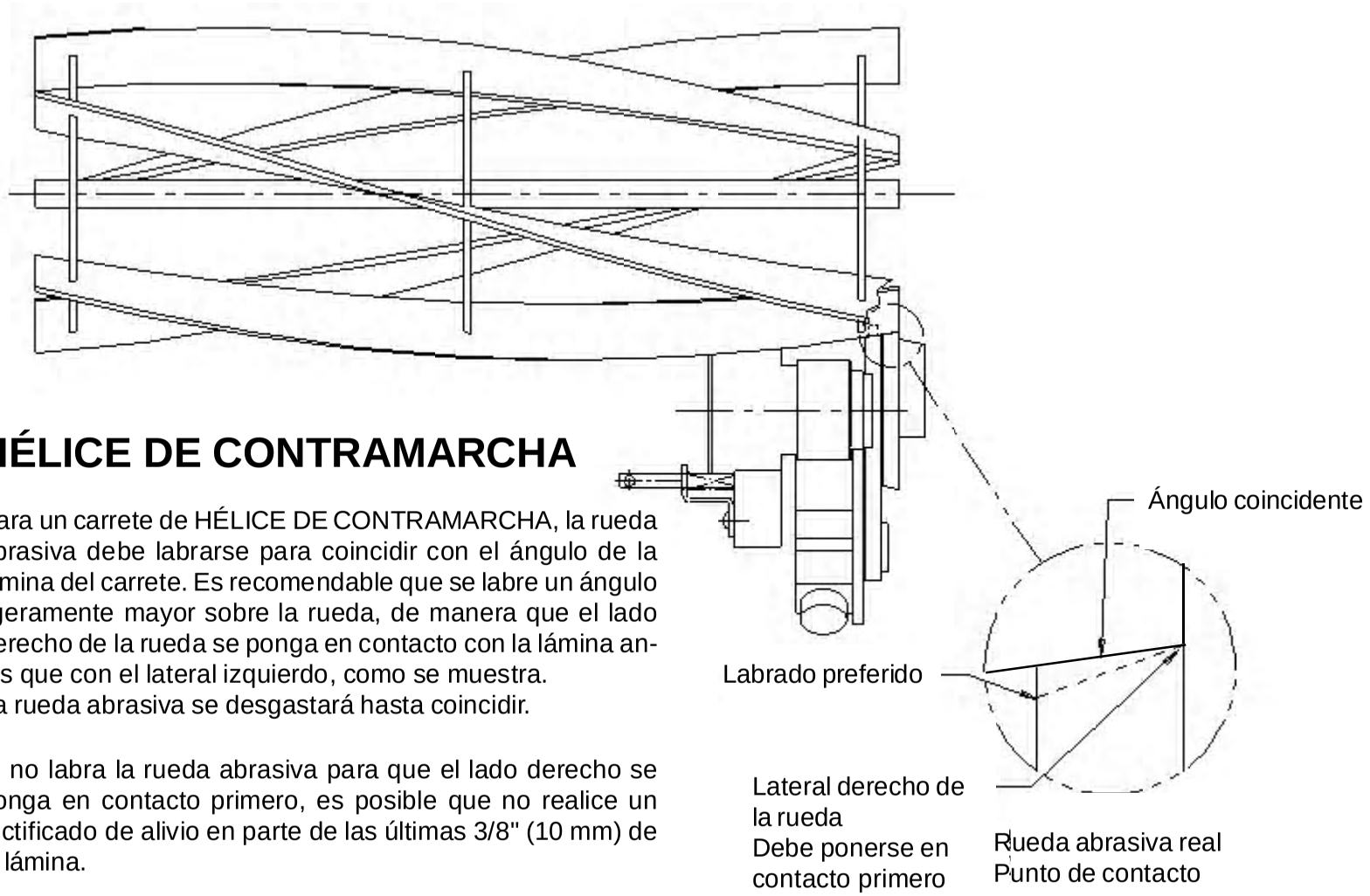


HÉLICE NORMAL

Para un carrete de HÉLICE NORMAL, la rueda abrasiva debe desgastarse para coincidir con el ángulo de la lámina del carrete.

NOTA: La rueda abrasiva de cara cuadrada como viene de fábrica puede utilizarse para los carretes de hélice normal y se desgastará para coincidir con la hélice de láminas del carrete.

A los carretes de hélice normal también se los denomina “de primer corte en lateral izquierdo” (visto desde el frente; posición de entrada de la grama) o carretes “de tiro derecho” (arroja la grama hacia la derecha de la posición del operador).



HÉLICE DE CONTRAMARCHA

Para un carrete de HÉLICE DE CONTRAMARCHA, la rueda abrasiva debe labrarse para coincidir con el ángulo de la lámina del carrete. Es recomendable que se labre un ángulo ligeramente mayor sobre la rueda, de manera que el lado derecho de la rueda se ponga en contacto con la lámina antes que con el lateral izquierdo, como se muestra.
La rueda abrasiva se desgastará hasta coincidir.

Si no labra la rueda abrasiva para que el lado derecho se ponga en contacto primero, es posible que no realice un rectificado de alivio en parte de las últimas 3/8" (10 mm) de la lámina.

NOTA: Una rueda que ha sido desgastada para que coincida con una hélice normal, por lo general, puede quitarse y revertirse para los carretes de hélice de contramarcha de rectificadora.

A los carretes de hélice de contramarcha también se los denomina “de primer corte en lateral derecho” (visto desde el frente; posición de entrada de la grama) o carretes “de tiro izquierdo” (arroja la grama hacia la izquierda de la posición del operador).

RECTIFICADO DE ALIVIO - CONTINUACIÓN

Reinicie el interruptor de proximidad del límite longitudinal, de manera que la rueda abrasiva se aleje del carrete en ambos extremos alrededor de 1/16" (1,5 mm).

Configure el interruptor del selector de rectificado en alivio de torsión variable.
(**IMPORTANTE:** (El interruptor de giro del impulsor de rotación debe estar en la posición de **OFF (Apagado)** cuando cambie el interruptor del selector de rectificado). Configure el interruptor de giro del impulsor de rotación para que gire el carrete al interior del dedo de retención, en sentido contrario a las agujas del reloj (CCW) cuando esté de cara al lado derecho. **NOTA:** La rotación del carrete de torsión de alivio es siempre una rotación opuesta. NO ENCIENDA EL INTERRUPTOR DEL MOTOR DE ROTACIÓN.

Con el desplazamiento en la posición de inicio (sensor de proximidad longitudinal del lateral derecho iluminado), avance la rueda abrasiva de alivio hacia arriba mientras manualmente gira el carrete hasta que el dedo de retención toque la lámina.

Gire el potenciómetro de velocidad longitudinal a cero, y luego, encienda el motor del impulsor longitudinal. Con el impulsor de la correa desacoplado, mueva manualmente el montaje de rectificado de alivio hacia la izquierda hasta que la lámina del carrete se encuentre sobre el dedo de retención de alivio fijo.

En esta instancia, de ser necesario, puede ajustar el ángulo de alivio al ajustar la posición del dedo de retención de alivio. Para realizar este ajuste, suelte la manivela de ajuste del ángulo de alivio. Vea la Fig. 24. Rotar el sistema de dedos de retención hacia abajo aumentará el ángulo de alivio, y rotar el sistema de dedos de retención hacia arriba, disminuirá el ángulo de alivio. Ajustar el ángulo de alivio o la posición de parada del dedo de retención índice es más sencillo con el cabezal de alivio del lado izquierdo del carrete.

Una vez que tenga el cabezal de rectificado en posición con la lámina del carrete sobre el punto alto del dedo de retención de alivio fijo, ajuste el punto de parada del dedo de retención índice. Debe haber alrededor de entre 1/32" (0,8 mm) y 1/16" (1,5 mm) de holgura entre el dedo de retención índice y la parte posterior de la lámina. El dedo de retención índice es accionado por resorte a la posición hacia arriba o contra la parte posterior de la lámina del carrete. Para verificar si hay holgura, presione el dedo de retención índice. Vea la Fig. 24 Si no hay holgura en el dedo de retención índice, es recomendable que gire la perilla ajustable de posición de parada del dedo de retención índice en sentido contrario a las agujas del reloj. Si hay más de 1/16" (1,5 mm) de holgura, es recomendable que gire la perilla ajustable de posición de parada del dedo de retención índice en sentido de las agujas del reloj.

IMPORTANTE: La posición del dedo de retención índice debe configurarse para detener la lámina del carrete y permitir que se desplace a la izquierda sin que la lámina golpee el lateral del dedo de retención de alivio. Esta posición también debe permitir que haya aproximadamente 1/32" (0,8 mm) de holgura del dedo de retención índice cuando la lámina esté sobre el punto alto del dedo de retención de alivio. Vea la Fig. 24.

Avance la rueda abrasiva hacia arriba hasta que haya un margen mínimo entre la lámina del carrete y la rueda abrasiva.

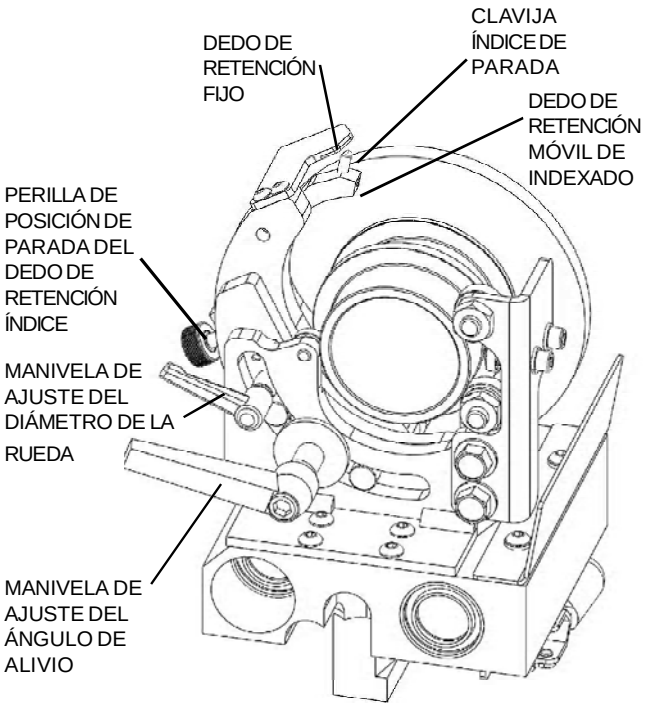

DEDO DE RETENCIÓN FIJO
CLAVIJA ÍNDICE DE PARADA
DEDO DE RETENCIÓN MÓVIL DE INDEXADO
PERILLA DE POSICIÓN DE PARADA DEL DEDO DE RETENCIÓN ÍNDICE
MANIVELA DE AJUSTE DEL DIÁMETRO DE LA RUEDA
MANIVELA DE AJUSTE DEL ÁNGULO DE ALIVIO

FIG. 24

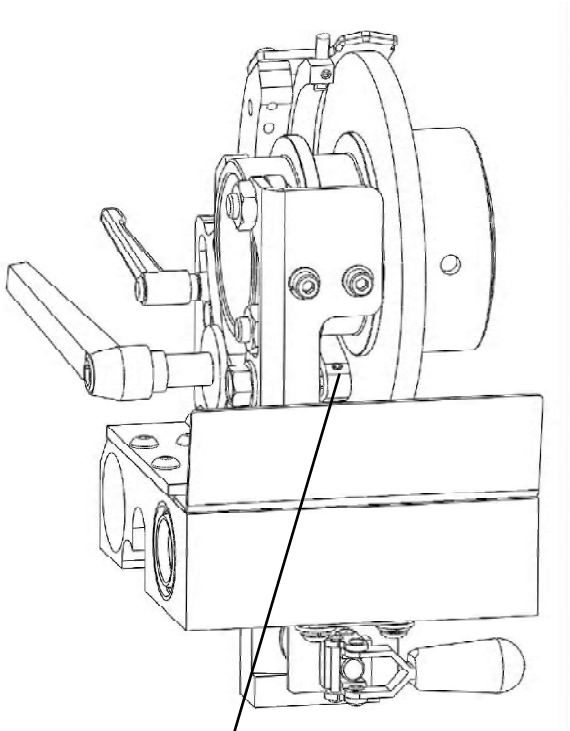


FIG. 25

RECTIFICADO DE ALIVIO - CONTINUACIÓN

Cierre las tapas frontal y posterior.

Encienda el interruptor del motor de giro.

NOTA: El impulsor de rotación aplicará una carga de torsión contra los dedos de retención.

Configure el potenciómetro de torsión de alivio en aproximadamente 15. **IMPORTANTE:** Es posible que los carretes de giro libre necesiten un valor menor a 15, y los carretes rígidos o los carretes con un tren impulsor, una torsión mayor a 15.

Acople la correa longitudinal y desplace hasta el extremo izquierdo, controlando que haya un margen adecuado entre la rueda abrasiva y la lámina. Compruebe que haya un margen adecuado entre el dedo de retención índice (luego de desacoplar de la lámina en la posición extrema izquierda) y el lado frontal de la lámina sobre el dispositivo interruptor de regreso a la posición de inicio. También verifique el margen a los centradores de soporte de la lámina del carrete. De ser necesario, la parada de avance puede ajustarse. Vea la Fig. 25

Detenga el desplazamiento en la posición de inicio y verifique que haya una indexación correcta de la lámina. El control del impulsor longitudinal está configurado de fábrica con un tiempo de permanencia de dos segundos antes de revertir el recorrido del carro. Esto es para permitir que el carrete gire y el dedo de retención índice sujete la lámina siguiente. De ser necesario, el tiempo de permanencia puede ajustarse (consulte la sección Ajustes del potenciómetro del tablero de control en el Manual de montaje y servicio).

Encienda el motor del impulsor de rotación (ya debería estar encendido) y el interruptor del motor de la rueda abrasiva.

Gire el potenciómetro de velocidad longitudinal hasta la velocidad de rectificado adecuada. Lentamente, avance la rueda abrasiva hasta que sea capaz de rectificar la longitud total del carrete de manera uniforme. Un avance típico está entre 0,010" y 0,020" (0,25 y 0,50 mm). Asegúrese de haber rectificado todas las láminas antes de avanzar más.

NOTA: La velocidad longitudinal debe configurarse en aproximadamente 15 pies por minuto. Si está quitando una pequeña cantidad de material en los avances iniciales, se sugiere configurar en velocidades longitudinales más rápidas. Si está quitando una gran cantidad de material en los avances posteriores, es posible que sea necesario configurar velocidades longitudinales más lentas.

Luego de que el rectificado de alivio esté finalizado, apague todos los interruptores (también es una buena práctica presionar el botón de parada de emergencia), y luego, quite la unidad de corte de la máquina. Tenga precaución, puesto que las láminas del carrete estarán afiladas.

GRÁFICO DE CONFIGURACIÓN DEL CARRETE

Nota: Estas dimensiones variarán según la posición del carrete en el marco, el diám. del carrete, la altura de corte, la posición del rodillo, etc. Utilice estos valores solo a modo de guía.

MARCA, MODELO Y ALTURA DEL CORTE DEL CARRETE	MECANIZADO FRONTAL TIPO DE MONTAJE	MECANIZADO FRONTAL POSICIÓN DEL MONTAJE	DISTANCIA DE SEPARACIÓN DEL MECANIZADO	MONTAJE DEL IMPULSOR DE ROTACIÓN LADO D O I	POSICIÓN DEL IMPULSOR DE ROTACIÓN	CONFIGURACIÓN DE LA VELOCIDAD DE ROTACIÓN	CONFIGURACIÓN DE LA TORSIÓN DE ROTACIÓN	CONFIGURACIÓN DE LA VELOCIDAD LONGITUDINAL	NOTAS

ESTA PÁGINA ESTÁ EN BLANCO INTENCIONALMENTE CON EL OBJETIVO DE TOMAR NOTAS.

PART NUMBER
NÚMERO DE PIEZA
5NTRG5507951

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